



2021 | THE NATION, SOUTHERN CALIFORNIA AND ORANGE COUNTY ECONOMIC FORECAST

WOODS CENTER FOR ECONOMIC ANALYSIS AND FORECASTING



CALIFORNIA STATE UNIVERSITY
FULLERTON

COLLEGE OF
BUSINESS AND ECONOMICS

2021

THE NATION,
SOUTHERN CALIFORNIA
AND ORANGE COUNTY

ECONOMIC
FORECAST

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TABLE OF CONTENTS

The Great Disruption: Searching for Innovative Solutions
and Infinite Possibilities in a Post-COVID World

Economic Outlook and Forecasts:
The Nation, Southern California and Orange County

Anil Puri, Ph.D., and Mira Farka, Ph.D.

U.S. ECONOMIC OUTLOOK AND FORECASTS

The Great Disruption	3
Overview	3
A Virulent Year: The Pandemic Shock.....	9
Better Call Saul: The Policy Response.....	15
Breaking Bad: A Recession and Recovery Unlike Any Other.....	18

ORANGE COUNTY AND SOUTHERN CALIFORNIA

The Pandemic Effect on the State and the County	26
COVID and the Labor Markets	30
Housing Markets.....	34
Outlook and Forecasts	36
Employment Projections.....	38

TABLES

National	39
Orange County.....	40
Southern California.....	41
Los Angeles County	42
Riverside/San Bernardino Counties	43
Ventura County	44
Imperial County.....	45
Construction and Real Estate.....	46

SPONSORS ADS	47
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THE GREAT DISRUPTION: SEARCHING FOR INNOVATIVE SOLUTIONS AND INFINITE POSSIBILITIES IN A POST-COVID WORLD

ECONOMIC OUTLOOK AND FORECASTS:

The Nation, Southern California and Orange County

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THE GREAT DISRUPTION

“I am the danger! ... I am the one who knocks!”

– Walter White, *Breaking Bad*

Overview

Hailed as the most acclaimed television drama of all times, *Breaking Bad* is an artful masterpiece chockfull of complex character development, dark staging, hidden symbolism and superb cinematography. Set in recession-ravaged America (its debut was in January 2008), the show is unlike anything we have seen before (and since), from the opening scene (Walter White's khakis billowing against the brilliant blue New Mexico sky) to the final act (Walter White's ultimate demise accompanied by the tune of “Baby Blue”). The plot is as gripping as it is absurd: It shows the metamorphosis of a mild-mannered, timid, struggling and brilliant high-school chemistry teacher (Walter White) into a ruthless, diabolical, greedy criminal mastermind (Heisenberg) upon learning of his diagnosis of terminal lung cancer. The show is as brilliant and authentic as the “99.1% chemically pure blue crystal meth” produced by its protagonist.

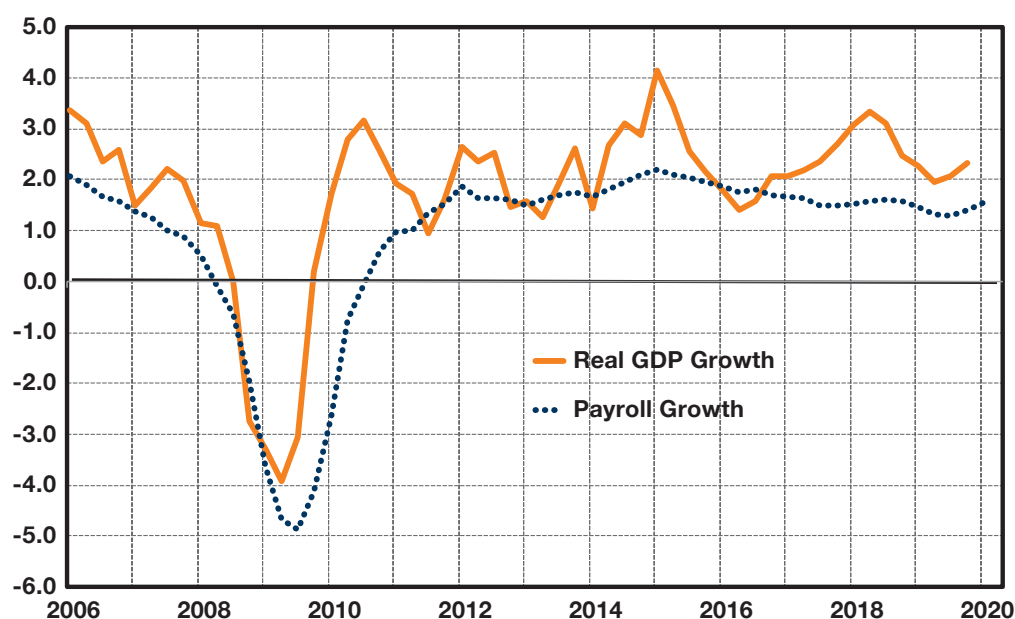
As dark as it may sound, the similarities between the economy in 2020 and *Breaking Bad* are hard to miss. Much like Walter White's metamorphosis to Heisenberg, the economy has undergone a swift and radical transformation unlike anything we have ever witnessed in a span of six months.

At the end of February, the U.S. was basking in the golden age of an expansion that had lasted more than a decade – the longest in the postwar era. Real GDP grew by a relatively modest 2.2% in 2019, but as of March 1, the Atlanta Fed high-frequency model estimated that growth in the first quarter had edged up to 3%. The unemployment rate stood at 3.5% – the lowest in over 50 years

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– and the labor market was humming along, having added more than 14 million jobs during the recovery (Figure 1). The number of job openings had exceeded the number of unemployed for 10 straight months, a first since the Bureau of Labor Statistics began collecting the data back in 2000. Other metrics were equally upbeat: The stock market set record highs in mid-February; household debt burdens were the lowest since the Great Recession; small business optimism hovered near historical highs; and industrial production picked up after slumping in 2019. More encouragingly, the dark clouds that were ominously threatening the aging recovery in 2019 had largely dissipated: The Fed had promised to do “what it can to sustain the expansion,” and in January, the U.S. and China completed a “Phase I” trade agreement. In short, life was normal, if somewhat dull, much like *Walter White’s* life pre-cancer diagnosis.

FIGURE 1
Steady as She Goes: U.S. Economy on Solid Footing as of February 2020
(real GDP and payroll growth, YoY percent change)



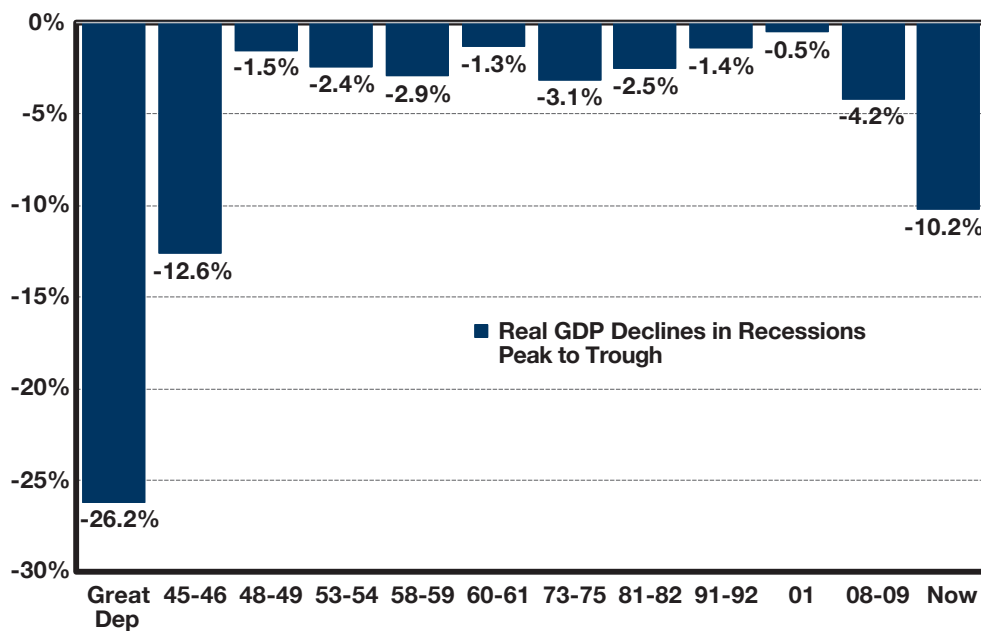
Then COVID-19 hit. As of March 18, there were 134,000 infections outside China in 155 countries and territories. By March 24 (the day that marks the national lockdown), the number of COVID-19 cases in the U.S. had swelled to 54,000, from just 8,300 the week before, while deaths had quintupled from nearly 200 to over 1,000. Epidemiological models (which have since been radically revised) warned of dire calamities: A model by the Imperial College of London predicted 2.2 million deaths in the U.S. alone. Spooked, governments across the world imposed draconian measures that were unimaginable just a few weeks prior, including school closures, travel restrictions, limitations on large gatherings, localized lockdowns and broad shutdowns. From mid-March to the end of April, cities across the world came to a standstill; bars and restaurants were deserted, and businesses went dark. The planet had shut down.

If from a public health perspective this pandemic has been serious, from an economic perspective it has been utterly disastrous. While flattening the curve, we levelled the economy. The wreckage has been bone-chilling: Real GDP plunged by a jaw-dropping 31.7% (annualized) in Q2 – the

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largest decline in history – after shedding 5% in the first quarter. From peak to trough, the decline totaled 10.2%, dwarfing the 4.2% drop of 2008-2009, which stretched over six quarters (Figure 2). Employment rolls collapsed a staggering 22.1 million jobs in a span of five weeks; 8 million people exited the labor force, and unemployment rate shot up to 14.7% – the highest since the Great Depression. An estimated 18% of small businesses may have shuttered for good. Worldwide, 400 million people are estimated to have lost their jobs, and global output is on track to fall by 5% this year, far greater than the slump recorded during the financial crisis. Much like *Ozymandias* – the third-to-last episode of *Breaking Bad* named after a sonnet dedicated to the crumbling empire of a once-powerful king – the longest expansion in history thus crumbled to the dust. The transformation of the economy from the gentle Walter White to the ruthless Heisenberg was complete.

FIGURE 2
How Black is this Swan? Real GDP Decline in Historical Context
(real GDP, peak-to-trough decline during recessions)



With such devastation, a new realization has begun to creep in: Blanket lockdowns and draconian shutdowns are too blunt and catastrophically costly for the economy. These measures were never properly discussed and fully assessed in the first place. Moreover, they are difficult to implement for sustained periods of time and not politically feasible in a time scale longer than a few weeks. Early on, as the pandemic was raging across the world and little was known about its spread and mortality, “flattening” or “bending” the curve in order not to overwhelm hospital capacity and strain health-care resources seemed a worthy goal. Fortunately, apocalyptic predictions about hospital bed and ventilator shortages never came to pass. However, what followed was a patchwork of confusing orders that were never clearly explained nor well understood. Public health official cycled through a myriad of terms with a wide range of implications like “mitigation,” “suppression” and “containment,” without ever properly defining their meanings and oftentimes using them interchangeably. To this day, it is not quite clear what constitutes an acceptable level of infections or mortality rate nor is there a systematic method for addressing future flare-ups and potential resurgences in the spread of the virus.

Blanket lockdowns and draconian shutdowns are too blunt and catastrophically costly for the economy.

It is of little surprise then that the recovery that began in early May has followed a most unusual path. Early on, as lockdown orders began to ease up and nonessential businesses started reopening, economic activity bounced back at a dizzying pace: Payroll numbers swelled by 2.7 million in May and an eye-popping 4.8 million in June. The labor force grew by a total of 3.4 million during those first two months of the recovery while the unemployment rate fell from a high of 14.7% to 10.2%. Jobless claims fell from 6.9 million at the end of March to 1.4 million by the end of June. Retail sales skyrocketed by 17.7% in May – a historical record – and by a hefty 7.5% in June. Consumer spending rose by 6.2% in June after a record 8.5% in May. Mobility in retail and recreational places picked up dramatically, while new business filings with the IRS grew by 120% over the previous year.

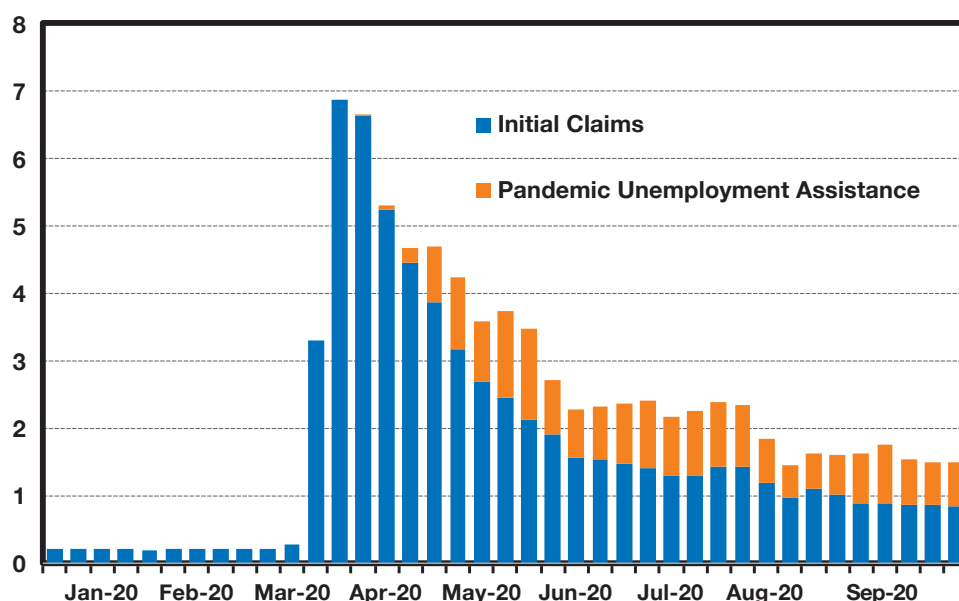
All this came to a screeching halt in early July. As the number of COVID-19 cases grew from an average of 25,000 in mid-June to around 77,000 in mid-July (almost twice as large as in April), a number of states, particularly in the Sunbelt, scrambled to pause or even reverse their reopening plans. With waning enthusiasm for a repeat of strict lockdown measures, state and local governments resorted to a lighter touch this time: selective business closures and modification of business operations. The pain was further compounded by changes in behavior on the part of consumers: As the pandemic continued to rage, many (especially the old and infirm) opted to voluntarily limit interactions, shunning beaches, restaurants and shopping malls.

This dealt a powerful blow to the nascent recovery. During July and August, the economy managed to eke out a few modest gains, but the overall trend was mostly sideways. Job growth downshifted from 4.8 million in June to 1.7 million in July and 1.3 million in August. Total jobless claims, which include initial claims plus Pandemic Unemployment Assistance (the emergency program put in place to help gig workers and the self-employed), have remained stubbornly high, at around 1.5 million since the end of July (Figure 3). Small business revenues recovered from -40% to -10% in the first phase of the recovery, only to tumble back down to -20% as of the end of August. Small business reopenings rose dramatically in the early stage but have stayed flat at -20% compared to pre-COVID levels since then.

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FIGURE 3
Unemployment Claims Continue to Remain Elevated
(weekly initial claims and pandemic unemployment assistance, millions)



This has soured the outlook with many analysts now expecting the path of the recovery to be long, sluggish and painful. They reckon that the wreckage from the initial lockdown is severe enough that the temporary damage may end up leaving some permanent scars, at least over the next few years. Repeated flare-ups in the spread of the virus will make for an uneven and uncertain recovery, partly because of government containment measures and partly because of changes in individual behavior. Economists surveyed by the *Wall Street Journal* in September put the probability of another recession over the next 12 months at nearly 37%. Many expect the economy to teeter on the brink of recession during the short term and to return to its pre-COVID state three to five years from now. This means we could be at the cusp of another lost half-decade.

This pervasive doom and gloom seems a bit outdone, in our view. At best, it has begun to ring unoriginal and a bit dated. The path of the envisioned recovery by the consensus resembles more closely to that of the Great Recession, when the economy slumped along for the better part of the decade, rather than the current reality. But this is not the Great Recession. We might not be entirely sure what this is yet, but it is not the Great Recession, and the path this recovery will take will be radically different from that one. And while we agree that some of the wreckage wrought will take time to reverse, our outlook calls for a faster return to normalcy with real GDP reaching its pre-pandemic peak by the end of 2021 and unemployment dropping to a level consistent with full employment by the end of 2022.

For starters, the pandemic has heaped upon us the most unusual recession and most uneven recovery. Just as Walter White in *Breaking Bad* decided to break bad on his own free will, the 2020 recession came about as the economy was intentionally stunted to avoid unacceptably high mortality rates and to mitigate the spread of the disease. There was nothing fundamentally wrong with the economy back in February. There were no massive debt overhangs, no glaring misallocation of resources and no obvious credit bubble.

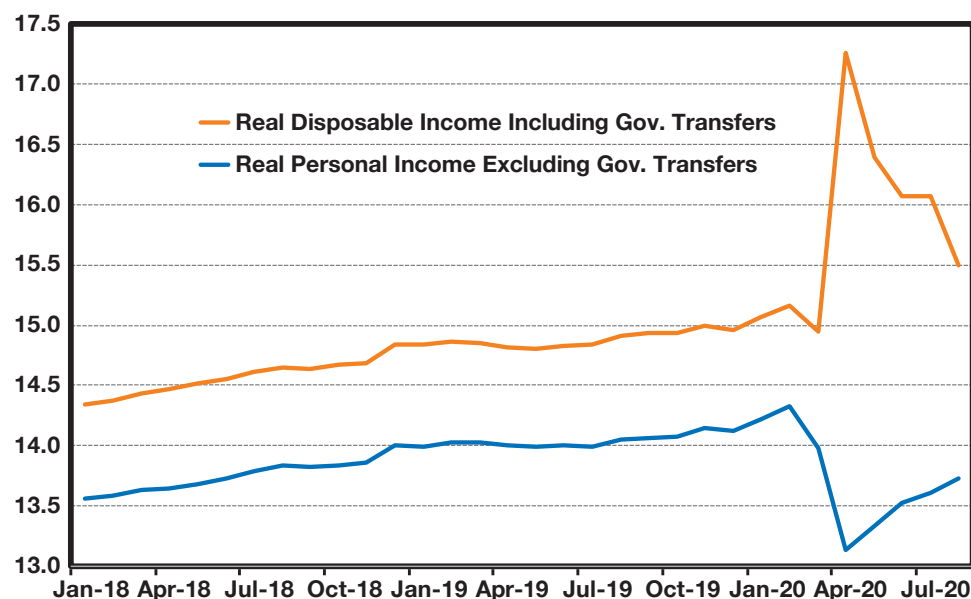
Most importantly, unlike the Great Recession, the policy response this time around was simply unprecedented both in timing and scope. In rapid succession, Congress pushed through the Coronavirus Preparedness and Response Supplemental Appropriations Act (\$8.3 billion), the Families First Act (\$192 billion) and a mammoth \$2.3 trillion CARES Act, which was further expanded by an additional \$485 billion mostly used to boost the highly popular Paycheck Protection Program (PPP). The Fed has undertaken an equally herculean task by stabilizing the financial markets, breathing life into the corporate bond market, extending credit lines to businesses big and small, and resuming purchases of massive amounts of Treasury and mortgage backed securities, all adding up to the tune of \$4 trillion. All told, the fiscal and monetary stimulus combine for a gigantic \$7.1 trillion – the largest in the postwar era and the world's biggest rescue package.

This massive largesse has managed to blunt the edges of the historic collapse brought on by the pandemic. In fact, though the drop in GDP and the rise in joblessness are the worst since the Great Depression, this recession is unusual in a variety of ways. As unemployment sky-rocketed in April, personal income based on compensation and wages fell by a staggering \$840 billion (on an annualized basis), while disposable income, which includes government transfers, rose by an unprecedented \$2.3 trillion (Figure 4). This boosted the saving rate to a staggering 34%, and though it has edged down a bit in the third quarter, it still stands at a hefty 14%, placing consumers in a strong footing to weather potential storms ahead.

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Unlike the Great Recession, the policy response this time around was simply unprecedented both in timing and scope.

FIGURE 4
Fiscal Rescue Has Propped up Income at Highest Clip in History
 (real disposable income and real personal income excluding gov. transfers,
 trillions of dollars)



More encouragingly, after a difficult summer, there are now signs that the economy is growing more confidently “around the virus,” so to speak. The Atlanta Fed high frequency real GDP model is currently showing an estimated 33% growth for the third quarter, a historic high. Continued unemployment claims have edged down from nearly 25 million at the height of the pandemic to currently half that level. Home sales, retail and consumer spending on durable goods have fully recovered and are now running above their pre-pandemic peaks. Activity has picked up in other areas too: Restaurant patronage has improved according to OpenTable data; rail traffic is up, and more travelers are moving through the Transportation Security Administration (TSA) checkpoints. And the Manufacturing PMI and Service PMI, which measure activity in manufacturing and services, respectively, are well in expansion territory and higher than pre-pandemic levels.

These developments make a strong case for a sustained economic recovery, which, although fragile, is unlikely to keel over into another abyss over the forecast horizon. Our cautiously more-upbeat-than-consensus outlook is based on a few assumptions that more than ever need to be laid bare, not in the least because they also constitute the main risks to our baseline. On the virus front, we assume that testing capacities are further expanded while improvements in effective therapeutic drugs continue throughout this year. A vaccine is adopted and available by early-2021. On the policy front, we expect policymakers to coalesce around additional support totaling around \$1.6 trillion that would continue to provide supplemental assistance to state unemployment, replenish the PPP program, provide liability protection for businesses and offer some modest support to state and local governments. Lastly, on the political front, we assume that the election will proceed as smoothly as can be expected given a highly politicized and divided electorate, though we are the first to acknowledge the tenuousness of this assumption given the current political climate and the possibility that, with a historically large number of mail-in ballots, a clear election winner may take a while to materialize.

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Much can go wrong. Even if all our baseline assumptions hold, we expect the recovery to be exceptionally bumpy, fraught with setbacks and uncertainty and burdened by a trajectory that progresses in fits and starts. The climb up from the deep collapse is long and arduous: Despite dramatic improvements in the labor market, upwards of 10 million people remain unemployed. For some, the previous jobs may have vanished forever as businesses perish in the aftermath of the pandemic and others deploy more technological cost and labor saving measures. Chunks of everyday life will still be missing or remain somewhat depressed as social distancing measures reduce restaurant and shopping mall capacity and stadiums and concert halls continue to remain shuttered to large audiences. Much needed fiscal support may never materialize given the current dysfunctional political landscape.

More importantly, the recovery remains hostage to the virus outlook. There has never been a time in modern history when scientific and medical breakthroughs held such an important sway on the economic outlook since the pandemic will truly be behind us only when an effective vaccine is widely available. In the words of Jesse Pinkman, the *Breaking Bad* sidekick, “So, you do have a plan! Yeah, Mr. White! Yeah, science!” Yeah science, indeed.

A Virulent Year: The Pandemic Shock

“If you don’t know who I am, then maybe your best course would be to tread lightly.”

– Walter White, *Breaking Bad*

As 2020 dawned, even the gloomiest projections could not have foreseen that the world was on the cusp of a global pandemic, much less anticipate the devastation that followed both in human lives and economic costs. The virus first spread in China and then rapidly in the surrounding areas.

The first case of COVID-19 in the U.S. was reported on Jan. 20. By mid-February, Italy was ravaged by the disease as the world watched in horror overrun hospitals and strained medical facilities unable to cope with the caseload. By March 11, as the virus spread to 55 countries, the World Health Organization (WHO) mustered the courage to declare COVID-19 a global pandemic. As of this writing (early October), there are 38 million reported cases worldwide, and the death toll is above the grim milestone of 1 million. This is higher than the number of people having died worldwide from malaria (620,000), suicide (794,000) or HIV/AIDS (954,000) in 2017 – the latest year for which the figures are available. In the U.S., the number of infections currently stands at 7.8 million and the death toll at 216,000.

While the narrative of the disease is still being written, it helps to place it in historical context relative to other global outbreaks. So far, the pandemic has been less deadly than the Modern Plague (1890s), which claimed an estimated 10 million lives; the Spanish flu pandemic (1918-1919) with 50 million fatalities; or even the Asian flu (1957-1958) with 2 million deaths. It has already surpassed the Hong-Kong flu outbreak (1968-1970), which claimed around 1 million lives worldwide (Table 1).

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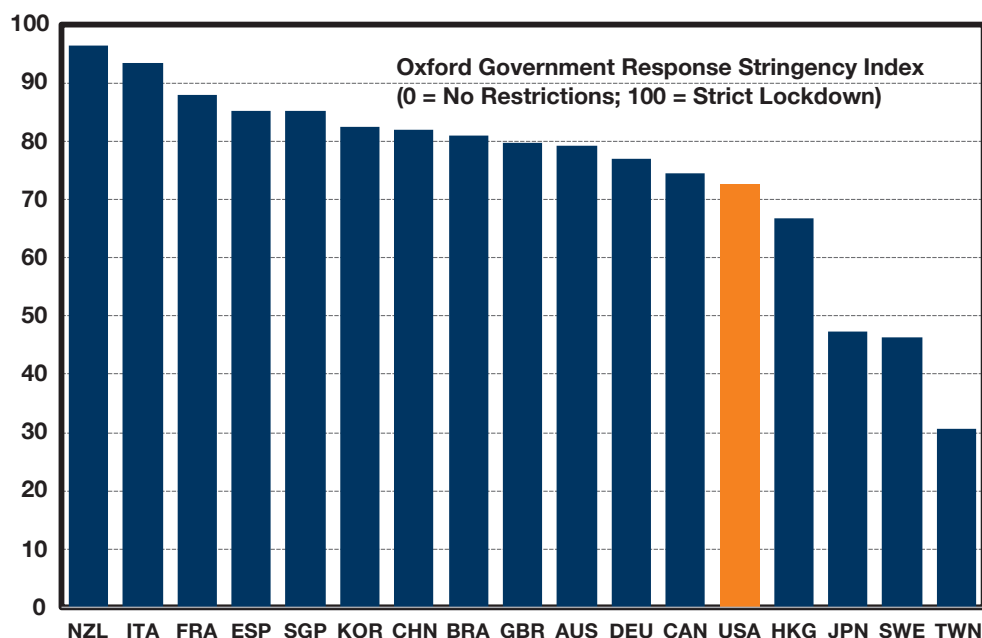
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TABLE 1
Modern Pandemics and Their Death Toll

YEAR	PANDEMIC	FATALITIES
1890	Russian Flu	1 million
1895	Modern Plague	10 million
1900	Sixth Cholera Pandemic	1.5 million
1918-19	Spanish Flu	50 million
1957-58	Asian Flu	2 million
1960	Seventh Cholera Pandemic	570,000
1968-70	Hong Kong Flu	1 million
2009	Swine Flu	294,000
2020	COVID-19	1 million

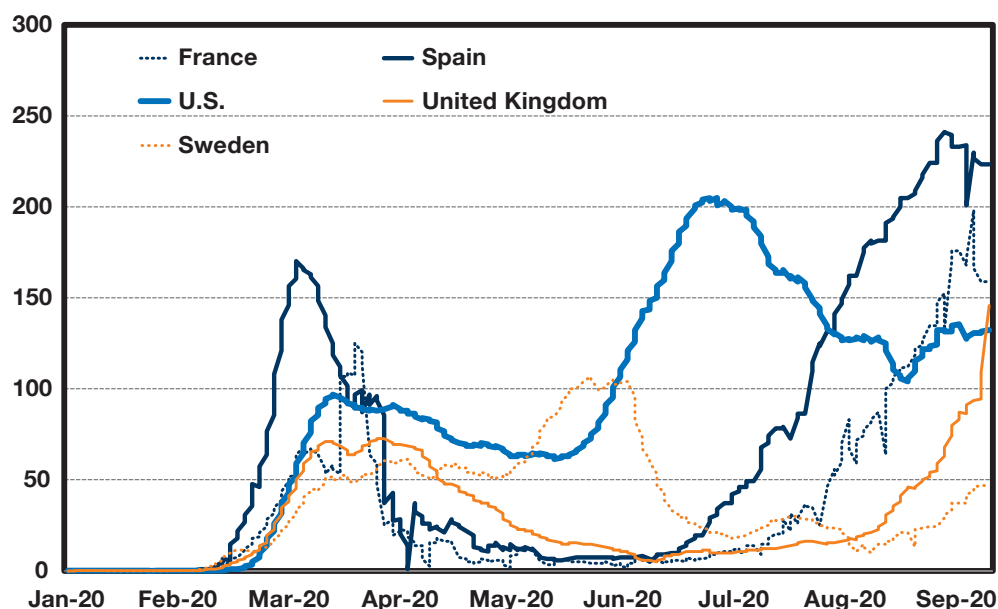
The threat of the disease sent governments across the world scrambling for answers. Most resorted to containment measures that involved broad restrictions on movements and daily economic activity, though the severity of the lockdowns varied from country to country, as captured by the Oxford COVID-19 Government Response Stringency Index (Figure 5). China, the first country to adopt strict containment measures, instituted a severe lockdown in the Hubei province, where the virus first originated, but less so in the rest of the country. New Zealand, Italy and France came closest to a full lockdown in March and April. Other countries (such as the U.S., UK, Canada and Germany) opted for a quasi-national lockdown but with less stringent measures. Yet a set of other countries chose an even lighter touch: Sweden never implemented a full-scale lockdown; Japan instituted a voluntary stay-at-home order, while Taiwan set in place an effective trace-and-track system and widely instituted mask-wearing long before other countries did.

FIGURE 5
Severity of Lockdowns Varied from Country to Country
(Oxford Government Response Stringency Index, level; 100 = strict lockdown)



These measures have resulted in a bewildering mix of outcomes. Strict measures in Australia, New Zealand and most of Europe seemed to have stopped the spread of the virus by late May, but cases have risen at a spectacular rate since the end of summer, and, in a few countries (Spain, France and the UK) infections are now higher than in the darkest days of lockdowns (Figure 6). New Zealand celebrated 102 days with no cases only to be hit by a new wave in August, triggering fresh restrictions. After suffering a peak around June, Sweden seems to have currently bucked the recent European uptick, but its mortality rate relative to other Nordic countries is quite high – 574 per million – while the rate in Denmark is 111; in Finland, it is 61.9, and in Norway, it is 49.3. Japan has fared a lot better, having recorded only 80,000 cases so far – a fraction of Europe’s – even though Japan’s population is as large as France’s and the UK’s combined. More impressively, the total death toll in Japan is only 1,500, even though it has the oldest population among advanced economies. Taiwan never instituted a full-fledged lockdown, yet it has recorded a shockingly low amount of cases and deaths, 500 and 7, respectively, since the start of the pandemic.

FIGURE 6
A Second Wave? COVID-19 Infections on the Rise in Europe
(daily infections per million, 7-day moving average)



For all the attention it has received, the American experience with COVID-19 is neither as terrible as critics argue nor as great as its politicians would like to claim. In absolute terms, it has the highest number of cases and deaths. Adjusting for population, the mortality rate, though tragic, is not exceptional when compared to other European nations: At 597 per million, it is lower than Belgium’s (a shocking 869.3), Spain’s (642) and the UK’s (626). This is remarkable especially when considering that roughly 11% of Americans are diabetic (compared to 5% in Italy or France) and more than one-third of its adults are obese (compared to a quarter in Germany). And unlike Europe, which seems to be on the cusp of a second wave, the dramatic spike in cases during the summer months appears to be the first wave spreading from the Northeast to the West and South (and now Northern Plains) rather than a genuine flare-up of a “second wave.” Importantly, the number of infections has come down meaningfully from its summer high, though there has been an uptick in cases over the past 10 days.

The American experience with COVID-19 is neither as terrible as critics argue nor as great as its politicians would like to claim.

Not surprisingly, containment measures have had a devastating economic impact in countries across the world, and at first blush, the stricter the lockdown, the deeper the fall. The U.S., Germany and Canada, with a similar stringency index, suffered roughly similar declines in Q2 GDP: 31.7% in the U.S., 33.5% in Germany and 38.7% in Canada. In contrast, countries that instituted stricter lockdowns witnessed a much deeper collapse: Spain's Q2 real GDP fell by a staggering 55.8%, France's by 44.8% and Italy's by 42.2%.

However, these analyses miss important nuances, especially since the policies adopted should be evaluated both in terms of their public health success (lives saved) and economic impact. And here things can get a bit murkier. The UK, which adopted similar containment measures as Germany, has suffered worst results on both counts with 626 deaths per million residents and a staggering collapse in Q2 real GDP of nearly 60% (annualized). Sweden, which never instituted a lockdown, has ended up not only with a higher death per capita than its Nordic neighbors but a deeper economic contraction: Economic activity contracted by 29.3% in the second quarter, far worse than Denmark's 25%, Norway's 19% and Finland's 16.8%. New Zealand's mortality is at a miniscule 5 per million residents, but its draconian shutdown led to a collapse in second quarter GDP of 40.3%. By contrast, Taiwan, which remained far more open than any country, has a mortality rate of 0.3 per million and its second quarter GDP shrank by a mere 1.4%.

This suggests that the hit to the economy is not solely due to government mandated restrictions but voluntary individual behavior as people self-isolate in order not to contract the disease. Fears are on the rise that as the winter knocks and activities migrate indoors where the virus is spread more easily, infections will spike again, sending skittish consumers back to hibernation and dealing another powerful blow to the recovery.

Some of this is inevitable. However, the outcomes do not have to be as disastrous: Six months after the initial pandemic panic gripped the world, much progress has been made both in terms of our knowledge about the virus and optimal containment measures. On the latter, it has become apparent that crippling rounds of lockdowns are not only costly and unsustainable but are not necessarily the most effective tools in saving lives. Instead governments ought to pursue smarter and more targeted methods, using testing and tracing to identify super-spreading venues (such as nightclubs, bars, large events and slaughterhouses), isolate the ill, encourage mask-wearing and social distancing, and emphasize reopening of activities with the highest economic benefit and lowest risks (such as schools outside hot spots).

Importantly, therapeutic drugs and improvement in the treatment of the disease have made COVID-19 less deadly. Cheap steroids like dexamethasone and hydrocortisone have shown to increase survival rates by reducing inflammation for patients requiring respiratory support. In one study, interferon beta treatment reduced the need for ventilators by 80%. Avigan (a Japanese drug used to treat the flu) and Remdesivir seem to offer marginal benefits by reducing the recovery time and, in some studies, lowering the mortality rate. Over 70,000 patients in the U.S. have been treated with convalescent plasma (antibodies harvested from recovered patients), which has shown to reduce mortality rates if administered early in the course of the disease. Monoclonal antibodies, which disable the virus, though expensive, have the benefit of being available more quickly than the vaccine and can be used both as effective treatment and prophylactically for high-risk individuals.

The hit to the economy is not solely due to government mandated restrictions but voluntary individual behavior as people self-isolate in order not to contract the disease.

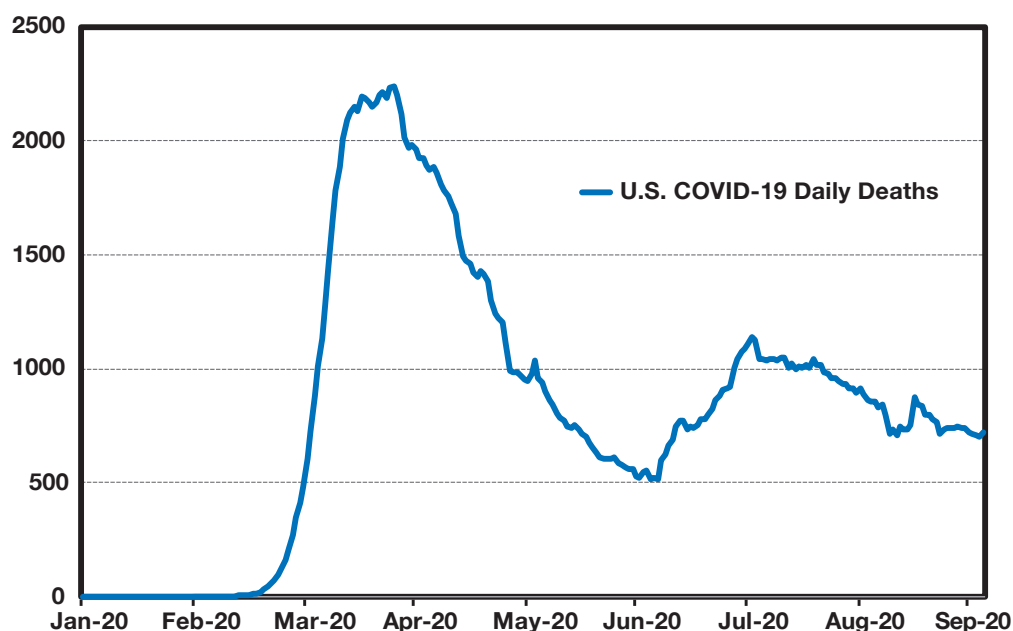
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Therapeutic drugs and improvement in the treatment of the disease have made COVID-19 less deadly.

These advances have significantly reduced mortality rates (Figure 7). Even as U.S. infection rates tripled in the summer, the death toll was nearly half that recorded in April. Mortality rates are also lower in Europe even though cases have risen dramatically over the past three weeks. In part, this also reflects the fact that while the March/April surge infected the old and the infirm, the summer wave seems to have skewed toward the young, who tend to fight the virus much more easily.

Even as U.S. infection rates tripled in the summer, the death toll was nearly half that recorded in April.

FIGURE 7
U.S. COVID-19 Mortality Rate Has Declined Dramatically
(new daily deaths, 7-day moving average)



Moreover, though the true mortality rate of COVID-19 is yet to be determined, it appears that it is less deadly than originally feared. T-cell immunity (a sort of immune memory built up from exposure to prior common cold coronaviruses) found in some people helps limit the impact of the disease. Serology tests for COVID-19 antibodies appear to indicate that a large number of infections have gone unreported either because people could not get a test, had only mild symptoms or were asymptomatic. Though there are wide confidence bands around the many serology tests carried worldwide, the percent of population carrying antibodies was as high as 21.6% in one study in New York City, 13% in another study in London and 9.6% in Wuhan (Table 2). Even if the seropositivity rate is as low as 6.4% – as speculated by *The Economist* – this would mean that the global infection rate would translate to a mind-boggling 500 million people. This means that the mortality rate, though plagued by potential issues of undercounting, would be extremely low.

Though the true mortality rate of COVID-19 is yet to be determined, it appears that it is less deadly than originally feared.

TABLE 2
COVID-19 Serology Tests

LOCATION	DATE	ESTIMATED POPULATION WITH ANTIBODIES
Santa Clara, CA	April 4	3.3%
Gangelt, Germany	April 9	14.0%
Los Angeles, CA	April 11	4.2%
Belgium	April 14	4.3%
Wuhan, China	April 15	9.6%
Netherlands	April 16	3.2%
Denmark	April 17	1.7%
Geneva, SWI	April 17	5.5%
Miami-Dade	April 24	6.0%
Spain	May 11	5.0%
Brazil	May 21	1.4%
Tokyo	June 3	3.8%
New York	June 13	13.4%
New York City	June 13	21.6%
Oregon	June 15	1.0%
England	July 13	6.0%
London	July 13	13.0%
Virginia	August 13	2.4%

More encouragingly, the race for a vaccine has entered its final stretch with as many as four companies, Moderna, Pfizer BioNTech, AstraZeneca, and Johnson & Johnson, entering Phase III clinical trials. Their efforts are backed by a hefty \$13 billion investment by the federal government in partnership with the Health and Human Services and a number of health-related agencies. Novovax has received \$1.6 billion and promised to deliver 100 million doses of its vaccine by the end of the year. AstraZeneca has received \$1.2 billion in exchange for 300 million doses of vaccine by the first quarter of 2021 (Table 3). The scale of operation is so massive that the federal government has also invested \$250 million in various firms manufacturing syringes needed to administer the vaccines when ready. Some of these efforts may never pan out, hence the need to invest in many different types of vaccines and a raft of companies. However, given the high stakes, a \$13 billion investment is a small price to pay for a possibility of a return to normalcy. Let's hope one of these acorns does end up bearing fruit, the sooner the better.

The race for a vaccine has entered its final stretch with as many as four companies, entering Phase III clinical trials. Their efforts are backed by a hefty \$13 billion investment by the federal government.

TABLE 3
Operation Warp Speed
U.S. Federal Support for COVID-19 Medical Research

DATE	VALUE	COMPANY
Vaccines		
February 10	\$456 million	Johnson & Johnson
April 9	\$31 million	Sanofi
April 15	\$483 million	Moderna
July 5	\$1.6 billion	Novavax
May 19	\$1.2 billion	AstraZeneca
Therapeutics		
June 29	\$1.6 billion	Gilead
July 5	\$450 million	Regeneron
Syringes, Vials, Manufacturing Capacity		
May 1	\$84 million	Retractable Technologies
May 1	\$27 million	Marathon Medical
June 1	\$628 million	Emergent BioSolutions
June 9	\$204 million	Corning
June 9	\$143 million	SiO2

Better Call Saul: The Policy Response

“Don’t drink and drive, but if you do, call me.”

– Saul Goodman, *Breaking Bad*

Saul Goodman, the shady smarmy lawyer in *Breaking Bad*, was the guy you turned to if you ran into trouble. He is the man to smooth things over, a guy who “knows a guy, who knows a guy” who might help you out of a jam in times of need. As COVID-19 hit and America battened down the hatches for a grueling crisis, it turned to its own Saul Goodman – the government response – to ease the pain and shoulder the calamity it was about to endure.

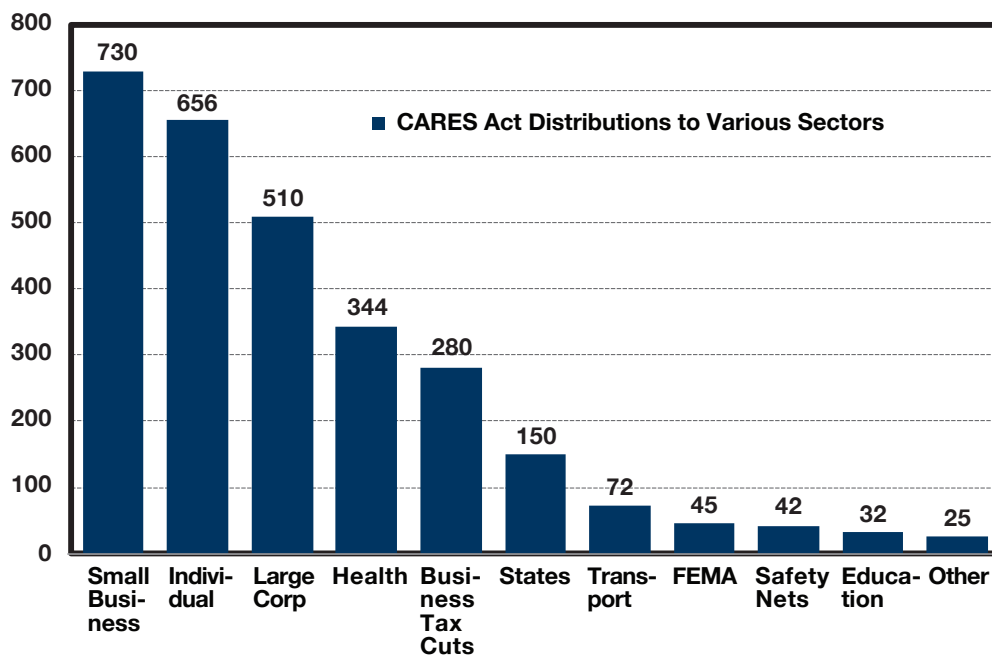
It was not disappointed. For once, the federal response was simultaneously swift, gigantic and relatively effective. In rapid succession, Congress passed three fiscal rescue packages, each larger than the previous one. Phase I, which passed on March 6, in the amount of \$8.5 billion appropriated money mainly to shore up public health entities: \$3.4 billion went to the Public Health and Social Services Emergency Fund to research and develop new therapeutic drugs and vaccines, \$1.6 billion to the CDC, and \$1.6 billion for overseas efforts to fight the virus. Phase II support, passed on March 18 in the amount of roughly \$190 billion, was mainly focused on providing relief to families and workers hit by the virus: \$105 billion in payroll tax credits went to facilitate paid sick leave, \$56 billion for Medicaid support, \$7 billion to beef up SNAP (the food assistance program) and additional aid to boost state unemployment benefits.

The federal response was simultaneously swift, gigantic and relatively effective.

Phase III oversaw the largest fiscal rescue in peacetime history. The CARES Act, passed on March 27, had a price tag of \$2.3 trillion, twice as large as the fiscal stimulus provided during the financial crisis (Figure 8). The gargantuan bill had something in it for everyone: \$260 billion were appropriated to fatten unemployment checks by an additional \$600 per week till the end of July and to extend the benefits from the usual 26 weeks to 39 weeks. A similar massive wad of cash – \$290 billion – in the form of tax rebates was sent directly to individuals making less than \$99,000 and couples earning less than \$198,000 in the amount of \$1,200 per adult and \$500 per child. The act set aside \$360 billion for the PPP, a widely popular program providing loans to small businesses, which could be converted to grants if funds were spent on payroll, rent and utilities and if businesses kept their employees throughout the pandemic. \$500 billion were set aside for liquidity purposes to provide loans for large corporations, as well as state and local municipalities. Other provisions included \$180 billion to the health-care sector, \$150 billion in aid to state governments, \$46 billion to transportation (airlines and other industries deemed critically important to national security), \$45 billion to FEMA, \$32 billion to education, \$25 billion for public transportation emergency relief and \$25 billion for the SNAP program. Due to high demand, the PPP program was depleted within two weeks: Congress passed an additional \$480 billion on April 23 (tranche 3.5, if you will), infusing an additional \$310 billion into the program.

The CARES Act, passed on March 27, had a price tag of \$2.3 trillion, twice as large as the fiscal stimulus provided during the financial crisis

FIGURE 8
The CARES Act: The Largest Postwar Fiscal Rescue Package
(billions of dollars)

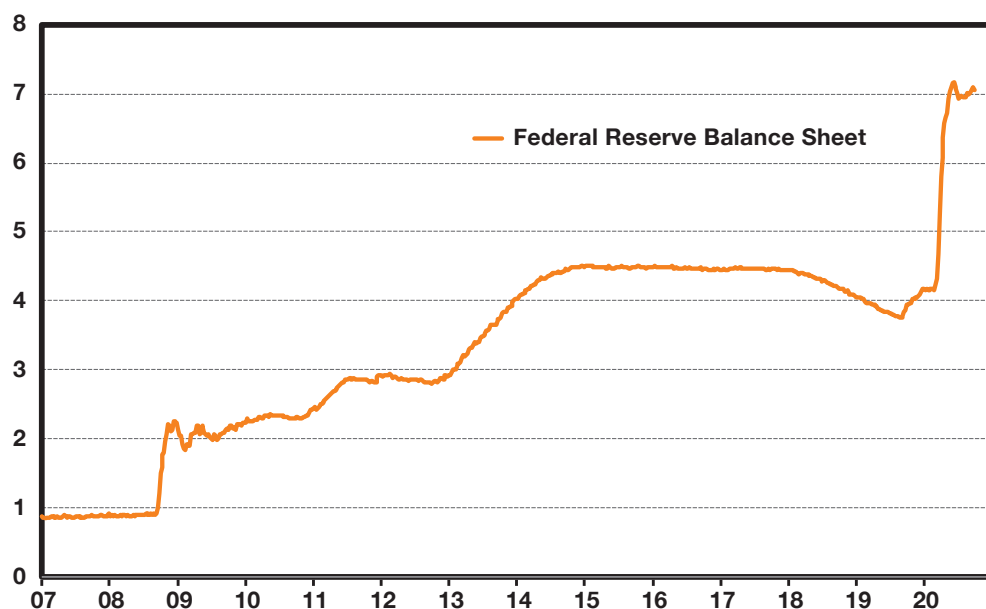


The Federal Reserve has also had its hands full, acting as a lender and market maker of first resort, a role for which it auditioned back in the 2008-2009 financial crisis but it only fully resumed during the pandemic. The scope of policy initiatives undertaken by the Fed are simply breathtaking. It swiftly lowered interest rates by 150 basis points; it committed to purchasing an unlimited quantity of Treasuries and agency mortgage-backed securities; it dusted off crisis-era programs and infused life in them in an effort to stabilize financial markets and stem the economic collapse. But the Fed did a lot more than revive old programs: It waddled deep into uncharted territory providing direct support to the corporate bond market, extending credit lines to large firms, and offering direct lending to small and medium-sized businesses.

All told, the sheer size of Fed intervention in the form of promises to lend or buy securities likely adds up to a massive \$4 trillion: Around \$2 trillion is supporting primary dealers; an additional \$800 billion is propping up the corporate bond market; \$600 billion is used for the Main Street lending program (targeting small businesses), and \$500 billion for state and local municipalities and a raft of other programs. This is all backed by a \$215 billion guarantee from the Treasury. The Fed has managed to soothe frayed investor sentiment with a fraction of the money: So far, it has only lent around \$100 billion through its schemes. However, its balance sheet has exploded: In barely four months, it swelled from \$4.1 trillion (before the pandemic) to an eye-popping current \$7.1 trillion (Figure 9).

All told, the sheer size of Fed intervention in the form of promises to lend or buy securities likely adds up to a massive \$4 trillion.

FIGURE 9
Federal Reserve Balance Sheet Has Swollen by \$3.1 trillion
(trillions of dollars)



This massive support has managed to soften the blows that the crisis inflicted: Though unemployment hit levels last seen during the Great Depression (nearly one century ago) and Q2 real GDP collapse was the largest in history, income grew by a staggering 44% (annualized) in the second quarter. Thanks to enhanced unemployment benefits, seven out of 10 unemployed Americans earned more during the April-July period than while working; one-fifth earned double their normal income. Not only did financial markets not collapse, but the S&P 500 staged a spectacular recovery, rising by 38% since its March 23 lows.

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Despite all this, it has become apparent that more support is needed. First, the pandemic has not been stamped out and will likely remain with us for months to come, which means the recovery will continue to progress in fits and starts. Second, the original fiscal package has run its course: The \$600 per week enhanced unemployment benefits came to an end at the end of July. Moreover, while the economy was flooded by an infusion of fiscal support amounting to \$1.2 trillion in April, the stimulus had downshifted to \$700 billion in May, \$560 billion in June and completely disappeared by August.

Alas, the political landscape in early October is vastly different from March when the world seemed to be on the precipice of a collapse. Congress appears to have less appetite for deal-making, and though both sides have acknowledged the need for more fiscal support, there is a yawning gulf of separation between the HEROES Act (the behemoth \$3.4 trillion proposed by House Democrats) and the HEALS Act (the \$1 trillion proposed by Senate Republicans). Both would replenish unemployment benefits, but while the Democrats' proposal keeps the enhanced amount at \$600 per week, Republicans would scale it back to \$200. Both sides agree to sending unconditional checks to households in the amount of \$1,200 per adult, but the HEALS Act keeps payments for dependents to \$500, while the HEROES Act boosts it to \$1,200 (up to three dependents). Democrats also want to shore up state and local finances by an additional \$1 trillion, a proposal that Republicans vehemently oppose.

As congressional negotiations stall, President Trump reminded everyone of the proverbial "a pen and a phone," signing four executive orders on Aug. 8, with a price tag of around \$170 billion. Of these, perhaps the most significant is the extension of enhanced federal insurance benefits by \$300 per week with an additional \$100 to be provided by the states. The other executive orders extended student loan deferral until the end of 2020, declared a temporary payroll tax holiday, and instructed government agencies to assist renters and homeowners with eviction orders. Though a step in the right direction, these measures fall woefully short of what is needed to shore up the recovery over the next few months. The extension of unemployment benefits runs out in mid-to-late October. The payroll tax holiday is simply a deferral and not an outright cut, and these taxes would still be due at the end of the year.

Our view is that despite political rancor, Congress will manage to scrape together a package as this year draws to a close, though the chances that this will happen before the election have all but vanished. We expect the size of the stimulus to be around \$1.6 trillion, containing support for enhanced unemployment benefits (around \$400 per week), one-time tax rebate checks to households (\$2,400 per couple), another tranche of PPP support, liability protection for businesses, additional money for education so schools can reopen safely, modest support (around \$300 billion) for state and local governments, and additional help for the airline industry. Though we are less confident about this call than a few weeks back, we still assign a greater than even probability of this occurring. There are a few signs pointing towards some thawing in negotiations: The White House and Congress agreed on a spending bill that avoids a shutdown and keeps the government funded until Dec. 11, and the House is considering a scaled-down version of its ambitious HEROES Act from an original \$3.4 trillion down to \$2.2 trillion. Hope springs eternal, and we do hope both sides agree to a deal soon.

Breaking Bad: A Recession and Recovery Unlike Any Other

"What I came to realize is that fear, that's the worst of it. That's the real enemy. So, get up, get out in the real world and you kick that bastard as hard you can right in the teeth."

– Walter White, *Breaking Bad*

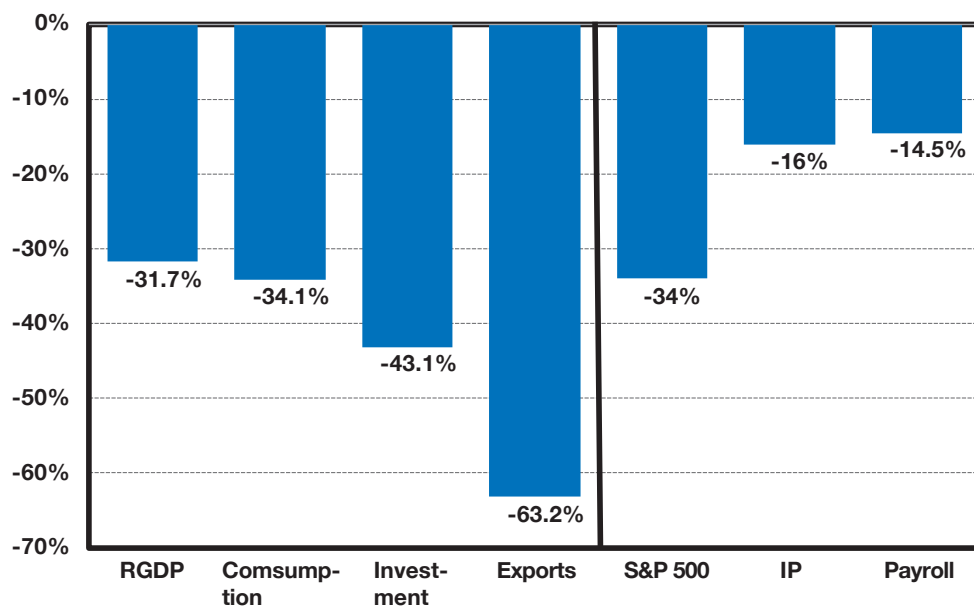
The final episode in the *Breaking Bad* saga is named "Felina," a word-play on the word *finale* and a theorized anagram of the chemical elements FeLiNa – Iron, Lithium, Sodium – or blood, meth and tears. A better description of the global economy circa March/April 2020 is hard to find. As the pandemic raged and the planet shut down, life entered a semi-surreal reality, much like Walter White's "fugue state" – a dissociative disorder characterized by a loss of awareness, personal identity and a "bewildered wandering."

Our view is that despite political rancor, Congress will manage to scrape together a package as this year draws to a close, though the chances that this will happen before the election have all but vanished. We expect the size of the stimulus to be around \$1.6 trillion

From peak to trough, real GDP fell by 10.2% in the first half of the year, a far larger collapse than the 2008-2009 financial crisis (4.1%), though smaller than the 1945-1946 post-war demobilization (12.7%) and the Great Depression (26.7%).

Unsurprisingly, the recession that sprung from this fugue state was unlike any other, plagued by unusual pathologies and uneven outcomes. From peak to trough, real GDP fell by 10.2% in the first half of the year, a far larger collapse than the 2008-2009 financial crisis (4.1%), though smaller than the 1945-1946 post-war demobilization (12.7%) and the Great Depression (26.7%). The quarterly decline, however, was the largest in history: 31.7% in the second quarter, following a more modest though still sizable slide of 5% in the first quarter (Figure 10). Consumption spending fell by a jaw-dropping 34.1%, easily the sharpest drop in history as consumers shunned the world and hunkered indoors. The contraction in investment, though deep and widespread, was less dramatic: Residential investment fell by a total of 7.1% since the peak (in Q4 2019), while non-residential investment by 8.8%. By contrast, residential investment collapsed by 36% during the six quarters of the Great Recession (from Q4 2007 to Q2 2009), while non-residential investment fell by 16.3% during that time.

FIGURE 10
A Dismal Quarter: Decline in Activity Was Unprecedented in Q2
(Q2 growth, annualized for GDP components, from peak to trough for other categories)



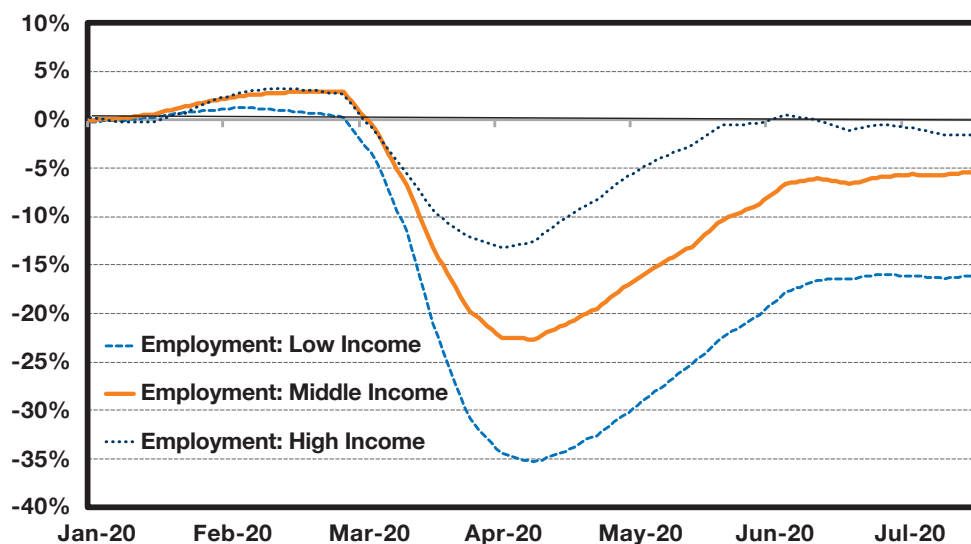
The real carnage was seen in the labor market: In a span of five weeks, 22.1 million people lost their jobs; the labor force participation rate fell by an unprecedented 3.2 percentage points, and unemployment rate shot up to 14.7% – the highest since the Great Depression. Worse, a broader measure of unemployment, the U-6, which accounts for marginally attached and discouraged workers, catapulted to a historical high of 22.8%. Prior to this, the peak was 17% during the financial crisis. In the last week of March, 6.8 million unemployment claims were clocked, crashing many state websites. The worst it ever got during the height of the financial crisis was one-tenth that value.

At lightning speed, the blood shedding spread to other sectors. As factories closed across the globe, capacity utilization fell to 64%, a historical low since the data began back in 1967. Manufacturing production collapsed by nearly 20% year-over-year; durable goods orders plunged by 30%, and business sentiment took a nosedive. Revenues for the S&P 500 firms dropped by 10.9%, while earnings sunk by 32.2%, the worst performance since Q3 2009. In a span of four weeks, from Feb. 19 until March 23, a total of \$11 trillion were wiped out from U.S. stock markets and \$22 trillion globally. BEACH industries – booking, entertainment, airlines, cruises and hotels – tumbled hard. The global airline industry alone saw \$157 billion wiped off valuations across 116 publicly traded airlines, while major cruise lines witnessed more than half of their market value evaporate.

More importantly, the pain has not been evenly spread. Recessions in general tend to dole out pain unevenly, hitting overstretched sectors more than others (the tech sector in the early 2000s, housing in 2008/2009). But the brutal impact of this recession has been decidedly more lopsided than your garden-variety-type recession with some sectors either skating by or recovering swiftly while others continuing to bear the brunt and scars of the collapse. In terms of output, the worst hit sector is Arts and Entertainment, which suffered a collapse of 57%, followed by Accommodation and Food Services (-43%) and Mining (-43%). By contrast, Financial Activities barely budged, shedding only 1.2% of its output during the crisis.

The labor market paints an even grimmer picture. By the end of April, almost half of Leisure and Hospitality workers were furloughed, followed by a 23% drop in employment in the Other Services category (which includes jobs in the health and beauty sector, repairs, automotive maintenance, etc.) and Retail with a 15.2% decline. Women have fared far worse than men: The unemployment rate was 3.4% for women and 3.6% for men in February 2020. By the end of April, this had skyrocketed to 16.2% for women and 13.5% for men, with 13.4 million women losing their jobs (18% of employment rolls) against 11.9 million men (14% of employment). A full 20% of working women with young children have considered dropping out of the labor force entirely compared to 11% of men, and another 15% of women are considering taking a step back from their careers. The recession has also been unequal based on income distribution. The brunt of the collapse was primarily shouldered by low-wage earners: By the end of April, employment for low-wage workers had shrunk by 35.3%, a far more dramatic collapse than the 22.7% seen for middle-income and a far less ominous 12.6% for high-wage earners (Figure 11).

FIGURE 11
A Lopsided Recovery: Employment Has Fully Recovered for High Earners
(employment, percent change from January 15)



If this does not feel like a normal recession, it's because it isn't. In a normal recession, unemployment rises, the stock market swoons, incomes drop, savings decline, delinquencies and charge-offs spike up, and home prices take a step back. Aside from the labor market bloodbath, none of the other sectors has exhibited the "common recession" symptoms. After a brutal four weeks between the end of February and March 24, the stock market staged a spectacular comeback and is currently a hair below its previous peak. Real disposable personal income grew by an annualized rate of \$2.3 trillion in April, a historic high, and though the number has come down as the one-time checks to households were exhausted and expanded unemployment benefits expired, aggregate income is still \$340 billion

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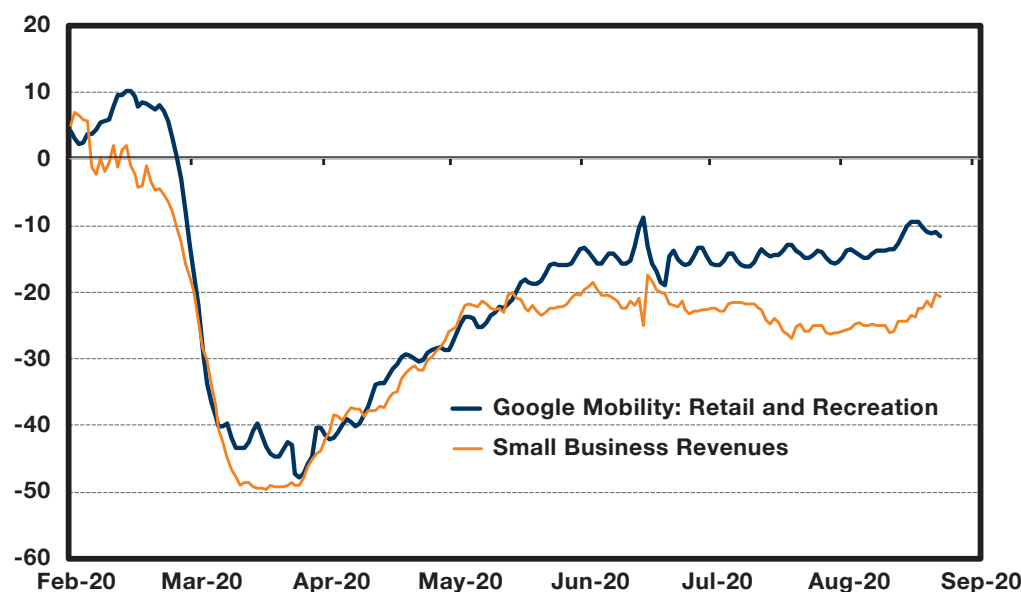
above its pre-pandemic levels. Personal savings rate spiked to an unprecedented 33.7% in April, and though that number is currently down to 14%, savings remains historically high. Delinquencies and charge-offs actually fell in the second quarter according to the New York Fed survey of consumer finances, while home prices rose every single month since the pandemic began.

This is largely due to the unprecedented fiscal and monetary response undertaken at the height of the crisis: Sending checks to households; goosing unemployment benefits; slashing interest rates, which have fueled housing and financial markets; and putting in place policies that allow for mortgage forbearance and eviction moratorium have not only cushioned the blows from the pandemic but seemed to have prevented an outright complete free-fall, at least temporarily.

But as fiscal support wanes and the virus continues to spread, fears have emerged that the “real recession” is still out there, and sooner or later, it will assert itself. It does not help that, after an initial V-shaped recovery lasting from May to mid-June, the economy appears to have moved sideways since then as infection rates spiked across the U.S. Signs of the stall are everywhere: The labor market added an astounding 4.8 million jobs in June, but the pace has steadily eroded since with employment growing by 1.7 million in July, 1.5 million in August and a paltry 661,000 in September. The labor force shrank by nearly 700,000 in September while initial unemployment claims have remained stubbornly high at around 850,000 for five straight weeks. Small business revenues are currently 20% below their pre-pandemic levels, the exact same place they were in mid-June, which means that virtually no progress was made during the summer months. According to Google Mobility report, trips to retail and restaurants improved from a calamitous -45% decline in mid-April to -15% at the end of June and have remained there ever since (Figure 12).

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FIGURE 12
Recovery Has Stalled Since July
(small business revenue and Google Mobility retail and rec, change from February)



Moreover, a lopsided recession appears to have spawned a highly uneven recovery. Some sectors have not only fully recovered their pre-pandemic peaks but have set new records. Retail (excluding food services) is currently running 4.5% higher than in February, while existing home sales reached the highest level since 2006. While spending on services continues to languish and is currently around 7% below its February peak, spending on durable goods is up 12% as households stocked

up on things from auto vehicles to patio furniture and high-tech gadgets to dumbbells. Consumption is back to pre-pandemic levels for low-income earners, but it remains 7.2% below for those earning more than \$60,000 per year.

Skewed and unequal, warts and all, our view is that the recovery, which commenced sometime in May, will persist over the forecast horizon, gaining breadth and traction as the distance from the initial pandemic shocks lengthen and the world adapts. V-shaped dreams are unlikely to materialize, and progress will continue in fits and starts, but the path forward will not be marred by the doldrums of the post-financial shock of 2008-2009 when growth stagnated and employment languished.

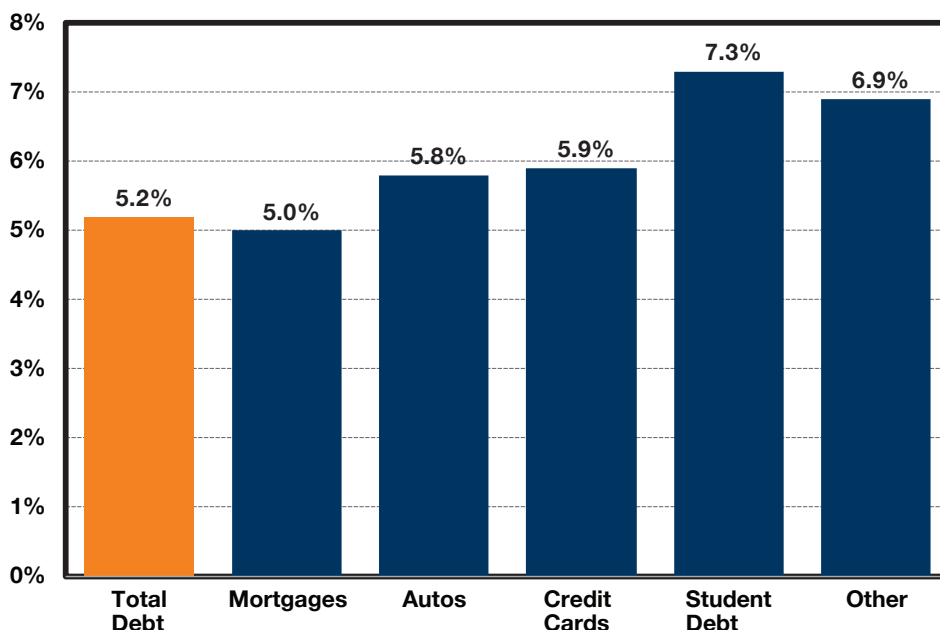
The case for a stronger recovery rests, in part, on the notion that, unlike financial crashes brought on by overburdened households and overleveraged banks, natural disasters (such as this pandemic) cause disruptions of economic activity that are typically followed by rapid recoveries. The economy was on solid footing circa February 2020: The unemployment rate was the lowest in over five decades; household balance sheets were pristine; consumers and banks had deleveraged fully, and business sentiment was running high. Sure, the business cycle was a bit long in the tooth, but there were no sizable misallocations or glaring debt overhangs that normally spell an impending doom.

Some of these favorable fundamentals are still at play. Household wealth rose by \$8.1 trillion in the second quarter, more than making up the \$6.5 trillion decline recorded in Q1. Improvements are largely due to financial wealth. As stock markets across the world cratered in March, nearly \$6.9 trillion were wiped out in household wealth. However, the dramatic loss was completely reversed in the second quarter as financial wealth rose by a staggering \$7.5 trillion. Home equity wealth never missed a beat growing by \$326 billion in the first quarter and an additional \$512 billion in the second. Estimated household debt-at-risk is around \$700 billion, equivalent to roughly around 5.2% of outstanding debt (Figure 13). By contrast, the amount of debt-at-risk during the financial crisis was nearly four times that amount at \$2.7 trillion, concentrated primarily on subprime mortgages.

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FIGURE 13
Household Debt at Risk Is a Fraction of Great Recession
(household debt at risk, percent of total)



Moreover, households balance sheets received a much needed boost from the stimulus. In the Household Pulse Survey conducted by the Census Bureau, around 15% of recipients said the money went towards paying debt, while another 14% used it towards boosting savings. The vast majority (70%) did spend it on mortgages, rents, utilities and other bills, which explains why delinquency rates have not increased. The expanded unemployment benefits boosted unemployment checks from a \$370 a week (on average) to a mind-boggling \$970 from April to July, and though they have become less generous since August, they still remain at a hefty \$770 per week. Though still some ways off from its pre-pandemic levels, consumer confidence as measured by the Conference Board bounced by an impressive 15 points in September, the largest increase in 17 years. Importantly, while infection rates rose in the summer across the country, consumer spending held tight, rising by 6.4% in June, 1.5% in July and 1% in August.

No other sector has had a more spectacular early-phase recovery than housing. According to CoreLogic, home prices rose every single month this year and are currently a full 4.2% above their February values. Existing home sales roared back after a brief pandemic slump, rising to 6 million (annualized), the highest level since 2006. The high demand is fueled both by an increased interest in working from home and by ultra-low mortgage rates. In September, the 30-year fixed mortgage rate dropped to a historical low of 2.86% down from 3.7% at the start of the year. The pace of sales has squeezed inventories to a historic low, with the supply of single-family homes on the market lasting only 2.8 months, the lowest in 38 years since records began. Housing starts are currently running at a 1.4 million annualized pace, significantly above the 934,000 recorded at the height of the pandemic. The homebuilder confidence index reported by the National Associations of Homebuilders (NAHB) soared to the highest level in history in September, while the share of mortgages in forbearance has declined for 16 straight weeks.

Business investments have also shown signs of life after a prolonged COVID-induced slump. New orders rose more than expected in August, and core capex shipments spiked at their highest level in almost six years, signaling a rebound in business equipment spending. Industrial production is now 17% higher than its April trough, and though the latest data indicate that the pace of improvement has slowed, it also showed that it has become more broad-based. The PMI manufacturing index has staged a strong recovery with recent data showing it well in expansion territory. Business sentiment (large and small) has rebounded, though it still hovers below pre-pandemic levels.

More importantly, the banking sector is on a much stronger footing now compared to the 2008-2009 financial crisis. U.S. banks hold around \$2 trillion of core capital in their balance sheets, almost double the amount in 2007. This constitutes a hefty 12% of risk-adjusted assets. When stress-tested for the worst case scenario dreamt up by the Federal Reserve, core capital falls a bit but remains at a still-chunky 10%. Reassuringly, the banks have been bracing for an increase in delinquencies and charge-offs, setting aside nearly \$30 billion in provisions for expected losses in the second quarter. Luckily, so far banks' charge-offs have risen by just 22% to \$4.9 billion compared to \$3.9 billion in 2019, but should delinquencies rise, the extra cushion of provisions should help stem any fallout.

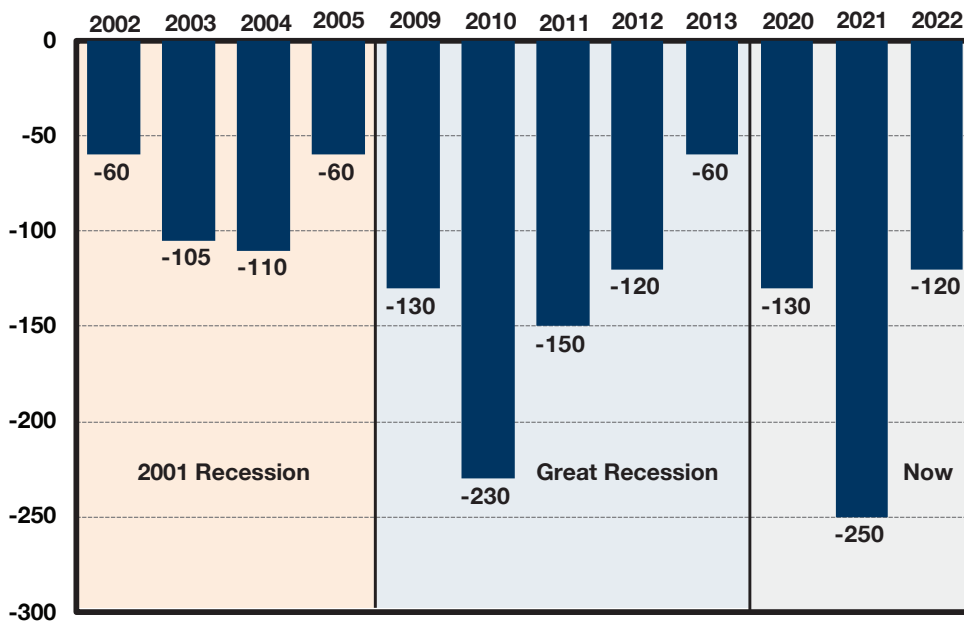
Some sectors, though still troubled, have fared better than originally feared. Corporate earnings and revenues have been dismal both in the second and third quarters, but they have outperformed hyper-bearish estimates. While in a typical quarter around 5% of firms beat analysts' forecasts, that figure is closer to 25% in the current quarter. This has boosted stock and bond prices, allowing corporations starved for cash and revenues to issue a record \$2 trillion in equity and debt, equivalent to 5% of the entire market and an increase of almost 50% for the year.

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Likewise, while state and local finances are in shambles, things appear less dire than they did just three months ago. Sales tax receipts fell by 7.2% in the second quarter, less than the 9.4% decline in consumption, while property tax receipts held up reasonably well growing by 3% on a year-over-year basis. The more upbeat general outlook is already reflected in some states' budget revisions: California's estimated budget shortfall in May was a jaw-dropping \$54.3 billion, but by late June, its revised estimates projected a \$40 billion deficit, a full \$10.3 billion below its initial estimate. Having said that, tough times are expected ahead should Congress fail to appropriate additional money to plug the sizable state and local budget deficits, which we estimate to be around \$350 billion over the next two years (Figure 14).

FIGURE 14
State Budget Shortfall Are Sizable
(state budget deficits, billions of dollars)



To sum up, the post-pandemic recovery has not only been more solid than many expected, but also more resilient, prompting many analysts to update their gloomy earlier projections. The OECD predicted in September that the U.S. economy would shrink by 3.8% this year rather than the 7.3% it expected back in June. The Federal Reserve currently expects the unemployment rate to average 7.6% during the final quarter of the year, a significant improvement over its June 9.3% estimate.

Though we never subscribed to these apocalyptic predictions, our outlook is that the recovery, while beating the most bearish estimates, will be beset by a number of risks and setbacks, which will be resolved only when the virus is fully behind us either through therapeutic treatments or a vaccine. Though the world may adapt and “learn to live” with the virus, life will be “less than normal” unless the virus is stomped out permanently. Until then, social distancing measures will likely chip away 8%-9% from real GDP growth as whole sectors, such as restaurants, arts and museums, and travel and accommodations, operate at reduced capacity. Disney has already announced plans to lay off 28,000 workers, while 40,000 airline employees were furloughed on Oct. 1. School closures have forced many parents to stay home to supervise their children, which has reduced their own ability to participate in the labor force. This is especially problematic for the 2.6 million single parents with children between the ages of 5 and 12. An additional 13 million households with children in this age group have more than one adult in the household, but even this segment would need to readjust work schedules.

The post-pandemic recovery has not only been more solid than many expected, but also more resilient, prompting many analysts to update their gloomy earlier projections.

Our outlook is that the recovery, while beating the most bearish estimates, will be beset by a number of risks and setbacks, which will be resolved only when the virus is fully behind us either through therapeutic treatments or a vaccine.

The pain will continue to be uneven with some sectors performing surprisingly well and others languishing. The commercial real estate sector is a shadow of its former self with demand for office and retail space likely never returning to its former glory. The pandemic accelerated already existing trends: Demand for retail space was on the wane even prior to the pandemic as online sales replaced brick-and-mortar retailers. Work-from-home was already on the uptick as Zoom and other platforms gained popularity, and though some of this will be reversed when offices open in earnest, it is hard to see demand for office space recovering its pre-pandemic levels.

Scars from this recession will likely linger for a while because the wounds it inflicted are simply too deep. Though the labor market has improved in leaps and bounds, employment rolls have shrunk by 10.7 million compared to their pre-pandemic peak. Of these, an estimated 5 million may have a hard time returning to work even after the pandemic is over because their previous jobs will no longer exist as businesses shutter and firms downsize. In April, 18 million people said they were on temporary layoffs from work, and while a large number of them have been rehired, a full 2.5 million have ended up permanently displaced from their jobs, and nearly 4.4 million have left the labor force.

More importantly, the outlook hinges uncomfortably on a handful of factors that may turn out worse than our baseline. The virus may get out of hand, and a vaccine may be delayed. Fiscal support from Congress may never materialize and the U.S. election may end up being a highly contested drawn-out affair. Barring these worst-scenario outcomes, our view is that U.S. real GDP reaches its pre-pandemic level by the end of next year, while unemployment returns to a level consistent with full employment by end-2022.

This reflects, in large part, the view that the U.S. recovery is grounded on improving fundamentals and has shown sufficient resilience during the past six months to withstand potential future headwinds. But it also reflects our fervent wish for 2020 to finally chart a different course. After all, having endured a once-in-a-century pandemic and a collapse in economic activity of historic proportions, we are overdue for some good fortune. In the immortal words of Walter White: “The Universe is random. Not inevitable. It’s simple chaos.” Let’s hope our next random encounter with the universe is luckier than the last one.

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ORANGE COUNTY AND SOUTHERN CALIFORNIA

The Pandemic Effect on the State and the County

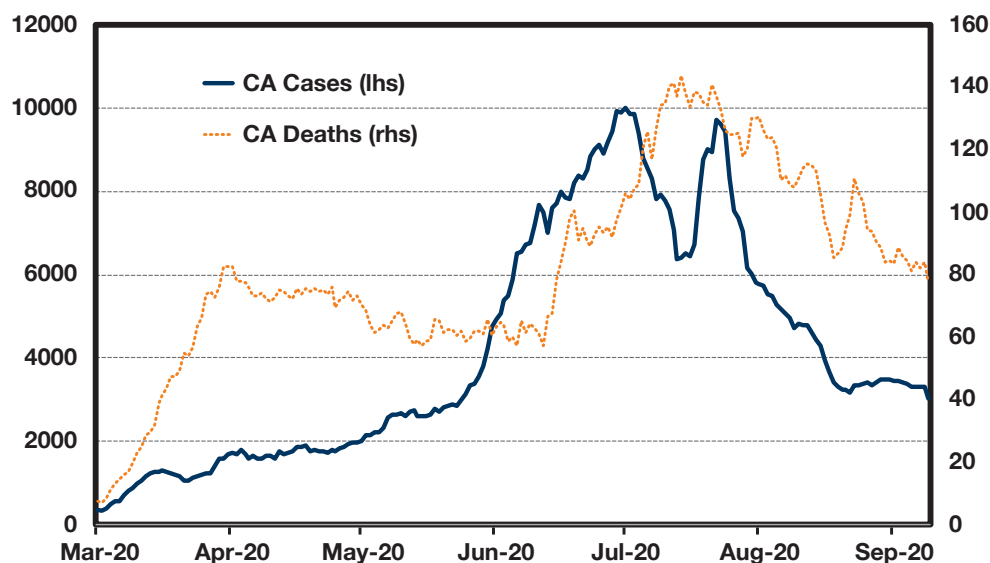
Predictably, neither the state of California nor Orange County and the surrounding areas were immune from the “Heisenberg effect,” the swift and radical transformation of the economy from a late-cycle expansion to a deep recession. The ensuing recovery also has followed a similar path to that of the nation, though there are marked regional differences as we discuss in this report. Since the virus has dictated the depth of the recession and the speed of the recovery, it helps to take a look at its progression in the state and the region. As expected, the path of the virus has been highly uneven and largely dependent on the attempts of both state and local jurisdictions to control the spread as well as the populations’ adherence to safety measures, such as using masks, social distancing and hand-washing protocols.

California experienced its first COVID-19 case on Jan. 25, 2020, in Orange County, with a second case in Los Angeles County reported the next day, establishing Southern California as a hot spot. Accelerating cases led Orange County to declare a state of emergency on Feb. 26. A similar declaration was made by the state of California on March 4, which was followed by the federal government’s announcement on March 13. The number of daily cases in the state continued to increase, reaching 1,169 on March 30.

The entire state was under a shelter-in-place order as of March 19. The lockdown lasted until May 9, when under public pressure, some of these restrictions were lifted. The state did enjoy a low number of cases at that time, though infections began to increase again, reaching the highest daily recorded of 12,807 on July 21 (Figure 15). By then, Governor Newsom had issued a raft of additional restrictions, reversing the early-May reopening orders. However, this time, instead of blanketed shelter-in-place orders, the statewide mandates required the closure of certain businesses, such as indoor dining and bars. Moreover, counties on the state’s watch list had to implement additional closures, including gyms, churches and hair salons.

As expected, the path of the virus has been highly uneven and largely dependent on the attempts of both state and local jurisdictions to control the spread as well as the populations’ adherence to safety measures, such as using masks, social distancing and hand-washing protocols.

FIGURE 15
California COVID-19 Infections and Deaths
(7-day moving average)



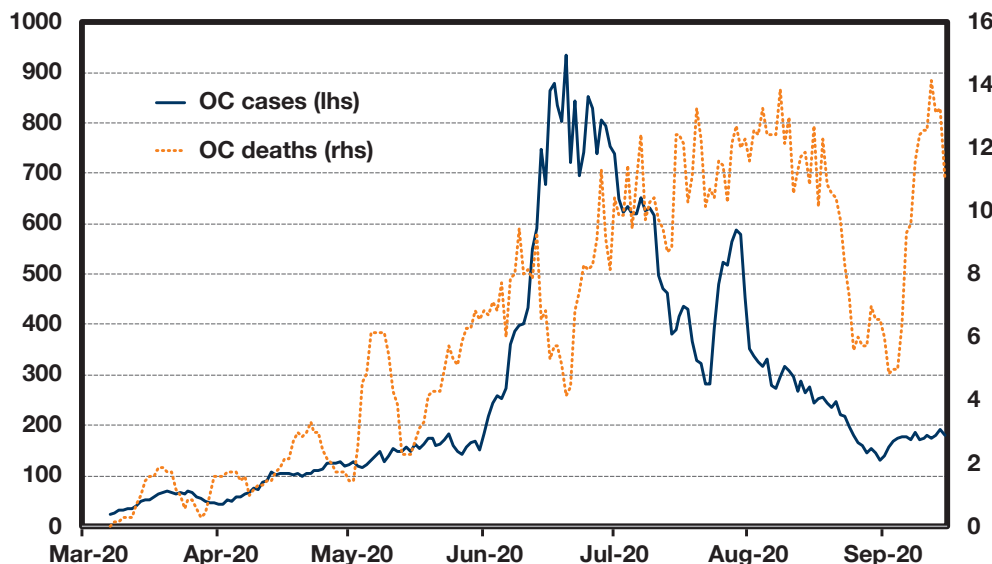
After declining for a few weeks, the daily case numbers rose again, reaching 12,614 on Aug. 14. Since then, infections in the state have been on a steady downtrend, recording an average of 2,000 per day at present (in early October). The overall cumulative number of infections has reached 835,000, the largest in the nation, followed by Texas with nearly 805,000.

Though the numbers may appear staggering, when normalized per million residents, California has fared much better than other large states. At its peak (in mid-summer) it recorded an infection rate of 228 per million, far lower than Florida's (with 552 cases per million), New York (511 cases per million) and Texas (364 per million).

California ranks much better also when it comes to the number of fatalities. The first death in the state was reported on March 4 in Placer County, 40 days after the discovery of the first case. In terms of absolute number of fatalities, with 16,000 deaths, California ranks fourth in the nation, behind New York (with 33,330 confirmed fatalities), Texas (16,661), and New Jersey (16,268). However, when normalized for the size of population, California ranks tenth, with a total of 411 deaths per million residents, far below the 1,831 recorded by New Jersey and 1,713 by New York. The good news is that fatalities have come down meaningfully, from a high of 731 on July 31, to a current less than 100 per day.

Orange County has had difficulty in accurately reporting its COVID cases and deaths, having twice revised its calculation methods. Based on the information currently available, Orange County's peak of daily cases occurred on July 8, when it reported 1,333 cases. The daily peak in deaths was on Aug. 6, with 32 deaths reported (Figure 16). The corresponding figures for Los Angeles County were 7,198 cases on July 5 and 113 deaths on Aug. 12. Figures 16, 17, 18 and 19 show trends in cases and deaths based on seven-day moving averages for four Southern California counties: Orange County, Los Angeles County, Riverside and San Bernardino counties.

FIGURE 16
Orange County COVID-19 Infections and Deaths
(7-day moving average)



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FIGURE 17
Los Angeles County COVID-19 Infections and Deaths
(7-day moving average)

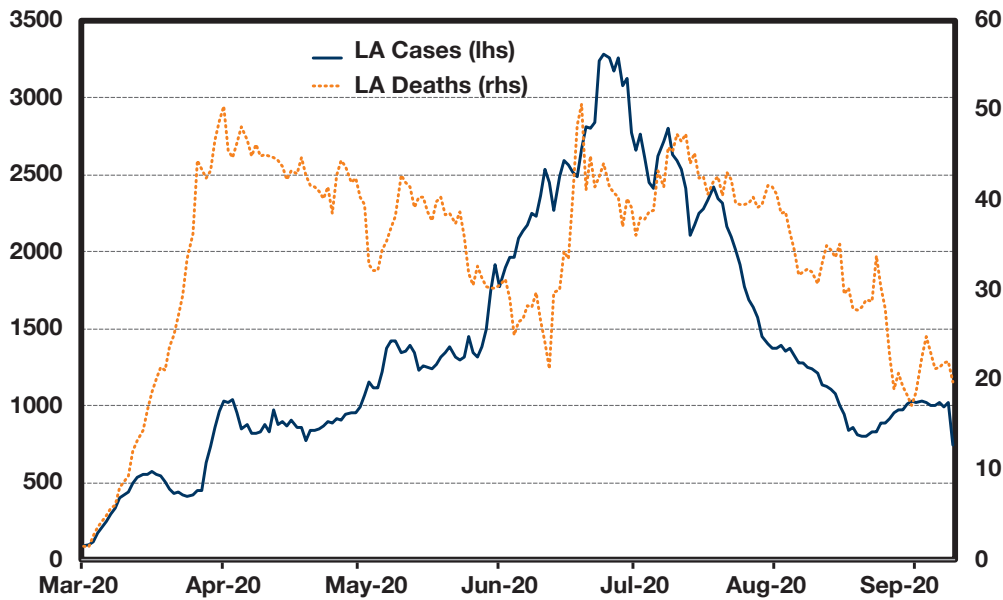


FIGURE 18
Riverside County COVID-19 Infections and Deaths
(7-day moving average)

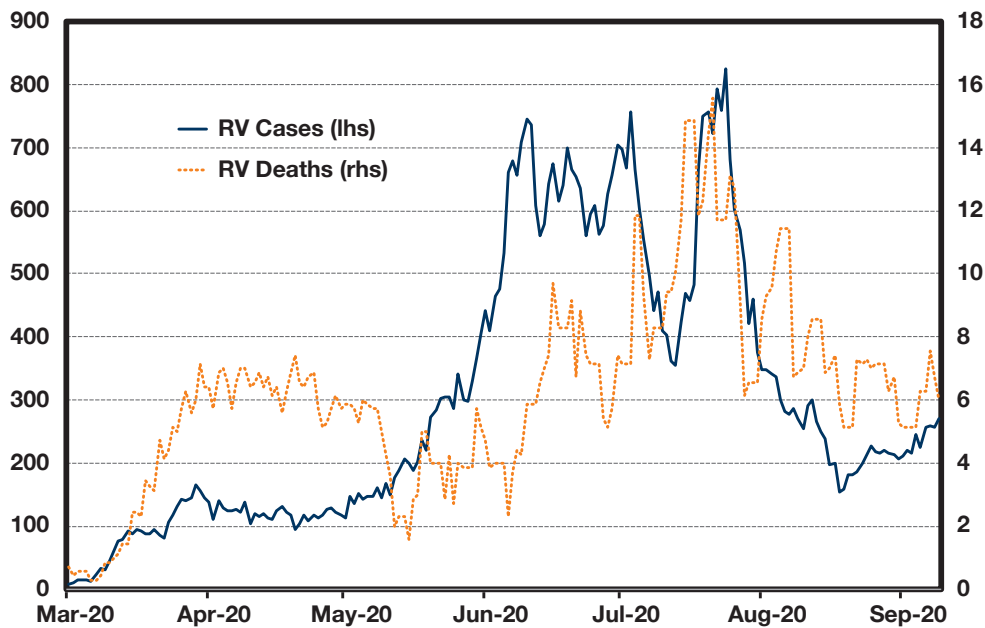
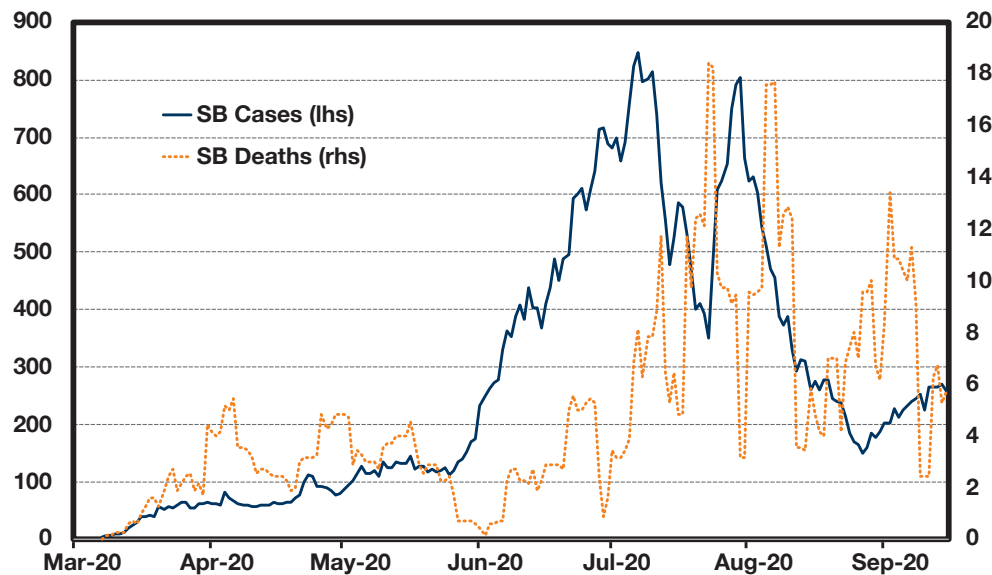


FIGURE 19
San Bernardino County COVID-19 Infections and Deaths
(7-day moving average)



Much like the nation, California and local jurisdictions have struggled to find effective ways to control the spread of the virus. After trying various methods, ranging from draconian lockdowns to selective business closures, the state finally issued a consistent framework on Aug. 28, known as the California Blueprint for a Safer Economy, which lays out criteria for reopening the counties' economies (Table 4). It came complete with a color-coding scheme, indicating the level of severity in the spread of the virus.

TABLE 4
California Blueprint for a Safer Economy

CALIFORNIA BLUEPRINT FOR A SAFER ECONOMY

COUNTY RISK LEVEL	ADJUSTED CASES	POSITIVITY RATE
	Daily new cases (per 100k)	Positive tests
WIDESPREAD Many non-essential indoor business operations are closed	More than 7	More than 8%
SUBSTANTIAL Some non-essential indoor business operations are closed	4-7	5 – 8%
MODERATE Some indoor business operations are open with modifications	1 – 3.9	2 – 4.9%
MINIMAL Most indoor business operations are open with modifications	Less than 1	Less than 2%

Every county in California is assigned to a tier based on its test positivity and adjusted case rate. At a minimum, counties must remain in a tier for at least three weeks before moving forward. Data is reviewed weekly and tiers are updated on Tuesdays. To move forward, a county must meet the next tier's criteria for two consecutive weeks. If a county's metrics worsen for two consecutive weeks, it will be assigned a more restrictive tier. Public health officials are constantly monitoring data and can step in if necessary.

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Orange County initially received a rating of “Widespread” level (tier one, purple), the most restrictive category. But it was soon moved to the “Substantial” level (tier two, red). By Sept. 29, it had hoped to move on to the “Moderate” level (orange), but its hopes were dashed because while it met the positivity rate criterion, it missed the threshold for new daily cases by a hair: the daily new infection rate was 4.4 per 100,000, a notch above the threshold level of four. The rate has risen a bit over the past few days, going in the opposite direction, but the hope is that the county will move to the “Moderate” level, which will allow more businesses to open. Greater openings should result in improving business and labor market conditions.

The virus has had a highly uneven impact on segments of population, depending on sex, ethnicity and health status. For example, in Orange County, though more women contracted the virus than men (50% to 48%), the number of fatalities is skewed significantly more towards men (57% to 43%). People with preexisting serious health conditions died in larger numbers than the rest of the population. Relative to their population size, Latinos showed a much higher percentage of cases as well as deaths (Table 5). But it also appears that white and Asian groups had a higher percentage of deaths relative to their share of the positive cases. At this time, little explanation is available for such divergences.

TABLE 5
Orange County COVID-19
Demographic Data as of September 2020

ORANGE COUNTY COVID-19
DEMOGRAPHIC DATA AS OF SEPTEMBER 2020

RACE/ETHNICITY	PERCENT OF CASES	PERCENT OF DEATHS	PERCENT OF POPULATION
American Indian/Alaska Native	0.2%	0.2%	0.2%
Asian	8.2%	18.2%	21.1%
Black or African American	1.3%	1.3%	1.6%
Hispanic or Latino	47.0%	44.5%	35.0%
Multiple Races	1.1%	1.5%	2.9%
Native Hawaiian/Pacific Islander	0.5%	0.4%	0.3%
Other	16.0%	1.3%	0.2%
White	25.8%	32.6%	38.6%
TOTAL	100.0%	100.0%	100.0%

COVID and the Labor Market

The pandemic wreaked havoc on Orange County’s labor market. The county’s unemployment rate jumped from 2.8% in February to 13.8% in April and 14.7% in May, matching the national unemployment rate, a first in history since Orange County unemployment tends to be lower than the nation. This was unprecedented. The closest example is the Great Recession, but even that episode pales in comparison. Back then the county’s unemployment rate rose to 10.1%, a historic postwar high, though the increase was a lot more gradual and the subsequent decline a lot slower. However, the unemployment rate has fallen over the past few months as the recovery takes hold, down to 12.4% in July and 9.9% in August.

The unprecedented pandemic and the resulting lockdown of the economy in April and May led to massive layoffs and furloughs. All told, in a span of five weeks, a total of 267,000 jobs – a full 16% of employment – were wiped out from employment rolls by June compared to February. And though the employment picture has improved materially since then, there were still 180,000 fewer employed workers in August compared to pre-pandemic levels.

The virus has had a highly uneven impact on segments of population, depending on sex, ethnicity and health status.

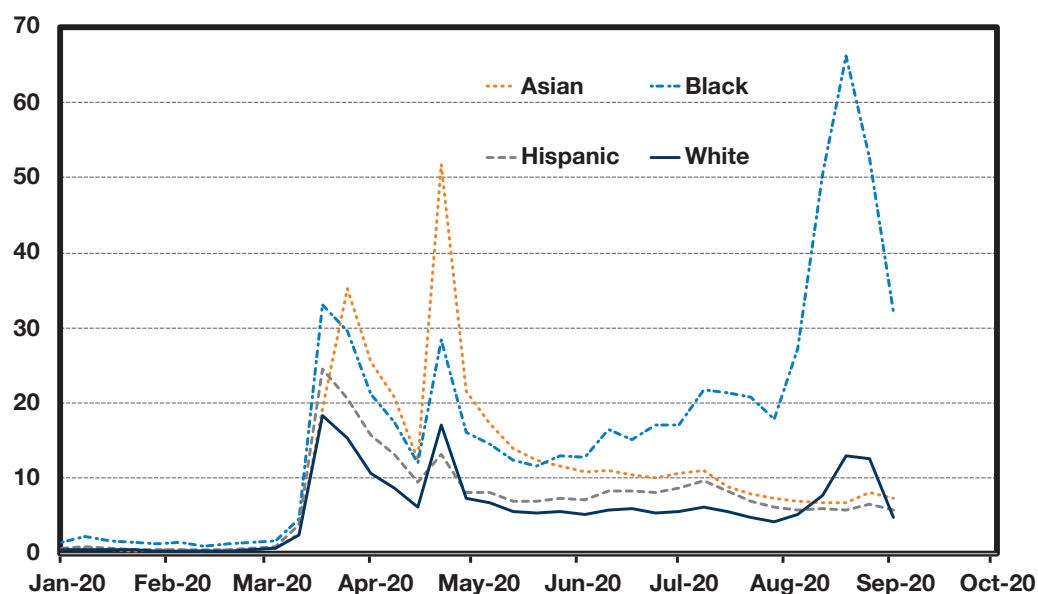
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Not surprisingly, unemployment insurance (UI) claims skyrocketed, with a spike in late March/early April when the shelter-at-home orders were first introduced and another one in early May. As expected, the pain was not equally doled out: Joblessness varied widely among different segments of the population and turned out to be highly dependent on race, education, sex and age.

Take race, for example. Though racial disparities are not immediately visible when looking at absolute numbers since some races, such as blacks, make up a small percentage of the county's total population, they become glaringly obvious when adjusting for population size. As seen in Figure 20, blacks and Asians applied for unemployment benefits at a much higher rate than whites and Hispanics, especially in the earlier phase. But, as the recovery began to take hold, unemployment claims for all groups have declined steadily, with the exception of black UI claims, which saw another spike in August and September.

FIGURE 20
Orange County Population-adjusted Unemployment Claims by Race (per thousand)



It is currently not clear what is causing this spike in black unemployment: It could simply reflect an issue with data collection, which would be cleared up once more information is available (the state paused UI operations in mid-September for two weeks to fix its data systems). Nonetheless, it is undeniable that the pandemic has stricken employment rolls of black workers harder than those of other racial groups.

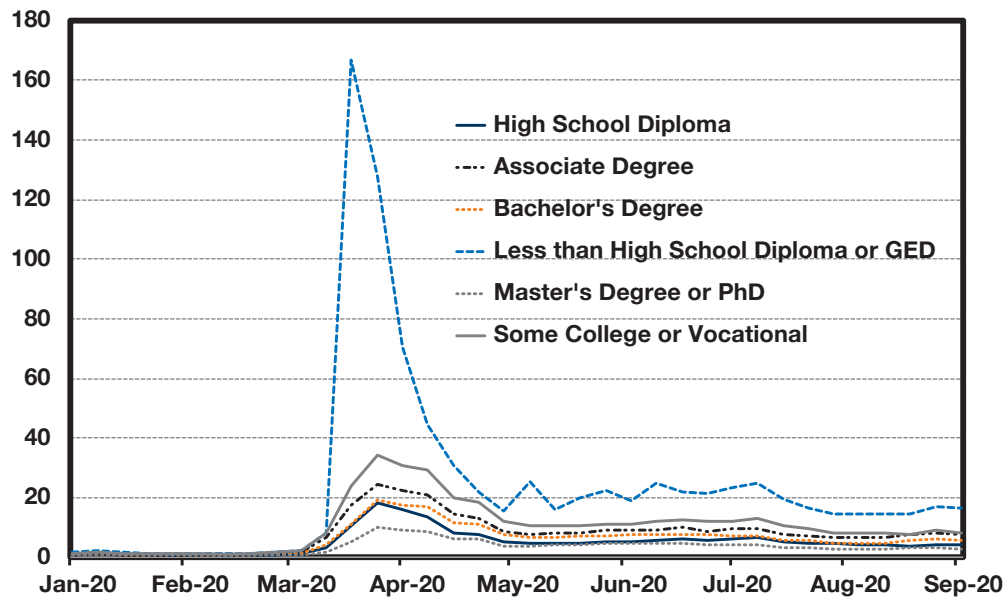
The biggest disparity is related to education levels with the less educated bearing the brunt of job losses caused by the pandemic and its state-mandated lockdowns (Figure 21). UI claims for those with less than a high school diploma or GED spiked in March/April in an order of magnitude eight to 16 times higher than other groups. And though unemployment claims have come down meaningfully since the dark days of lockdowns, they continue to remain elevated for those with low levels of education. The second worst hit group are those with some college or vocational training, followed by those holding an associate degree. In other words, pandemic-driven job losses are inversely proportional to educational levels. This is in spite of the notion that essential workers, many of whom have lower educational attainment, were less hurt by COVID-19.

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FIGURE 21
Orange County Population-adjusted Unemployment Claims by Education
 (per thousand)



More men than women appeared to have applied for unemployment claims, which bucks the national trend (Figure 22). Joblessness also seems to be skewed younger: The age group, adjusted for population, with the highest UI claims is that between 20-24 years, followed by the 25-34 age cohort (Figure 23). Interestingly, the very young (16-19 years old) and the very old (65- 85 years old) have the lowest amount of unemployment claims, most likely reflecting their loose connection to the labor market.

FIGURE 22
Orange County Population-adjusted Unemployment Claims by Sex
 (per thousand)

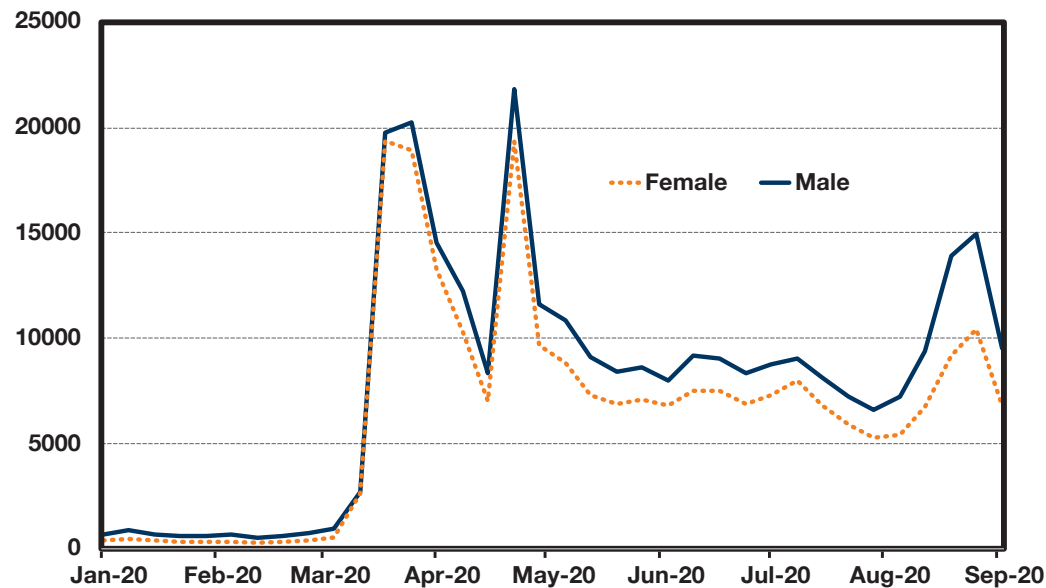
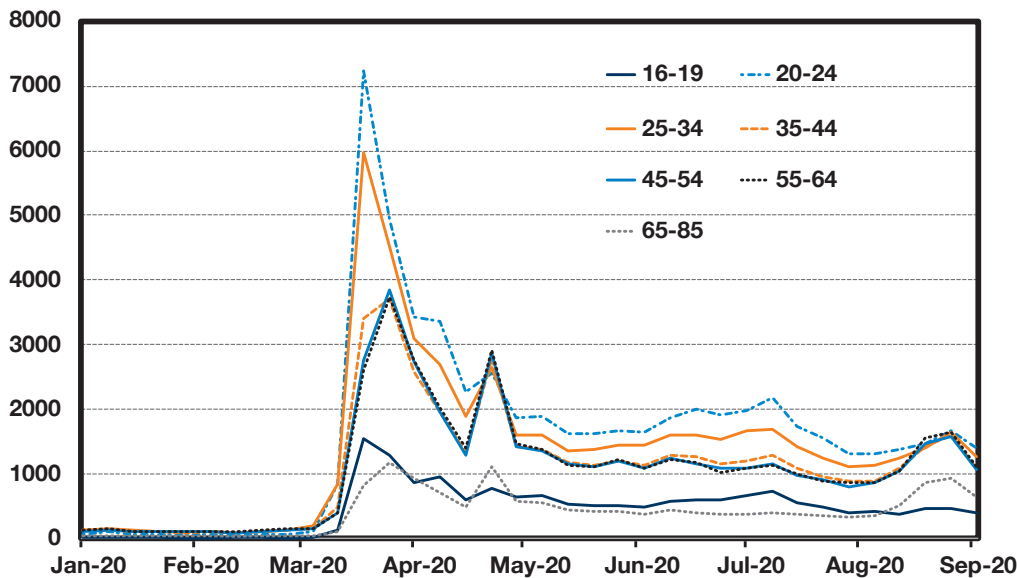


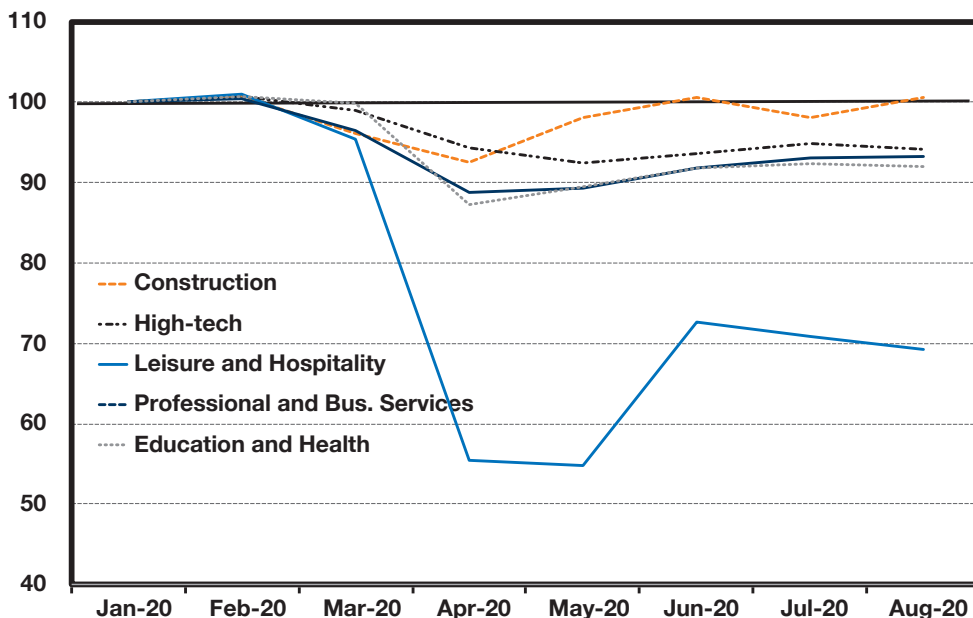
FIGURE 23
Orange County Population-adjusted Unemployment Claims by Age
(per thousand)



The uneven effect of this recession and recovery is best illustrated by its sectoral impact. While Construction has fully recovered from the crisis, the three other major sectors – High Tech, Professional and Business Services, and Education and Health – lag behind by 4% to 6% (Figure 24). The real carnage, however, can be seen in Leisure and Hospitality, whose employment rolls shrunk from a February high of 227,500 to 123,400. This is a jaw-dropping 104,000 decline, or 46%. Though employment has recovered somewhat as of August, rising to 156,000, it is still more than 30% below its pre-pandemic peak. Indeed, the situation is bleaker than what these figures suggest because employment in the Leisure and Hospitality sector normally has its seasonal peak in the summer months.

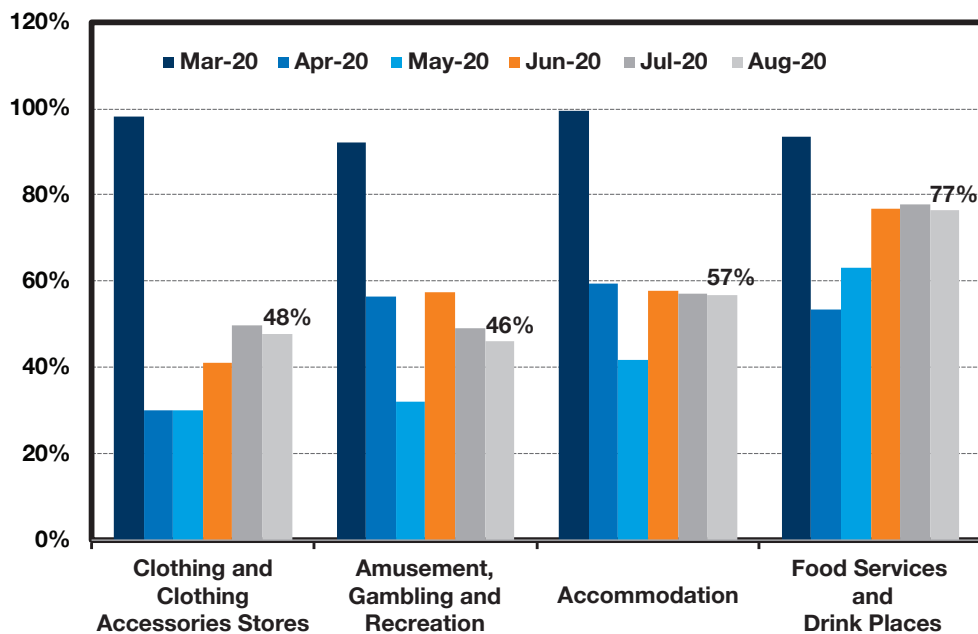
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FIGURE 24
A Lopsided Recession and Recovery: Some Sectors Feeling More Pain
OC Employment by Sectors, Index, February 2020=100



But even within the Leisure and Hospitality sector, some subsectors were more deeply wounded than others. Not only that, they are having a hard time recovering given that they are not easily adaptive to a world that is learning to cope with COVID. For example, employment in Amusement, Gambling and Recreation currently stands at 46% of its February level; employment in Accommodations is 57% of its pre-pandemic level; and Food Service and Drinking Establishments is at 77% (Figure 25). The Clothing and Clothing Accessories subsector is also struggling, currently standing at only 48% of its February employment level.

FIGURE 25
COVID-Stricken Sectors: Employment Relative to February 2020
(percent of February levels)



The short-term outlook for the Leisure and Hospitality sector is quite worrisome. Disney announced at the end of September that it will lay off 28,000 workers, partly because of a lack of reopening guidance by the state of California and partly because of expected feeble demand. A third of these job cuts are expected to be at the Disneyland Resort in Anaheim. Though a majority of these jobs may be for part-time workers, the impact will be felt widely by businesses dependent on Disneyland tourists' expenditure on hotels, restaurants and related businesses in the area. This will further add to the woes of the Orange County economy while adversely affecting tax revenues of the surrounding cities, especially those of Anaheim and Garden Grove.

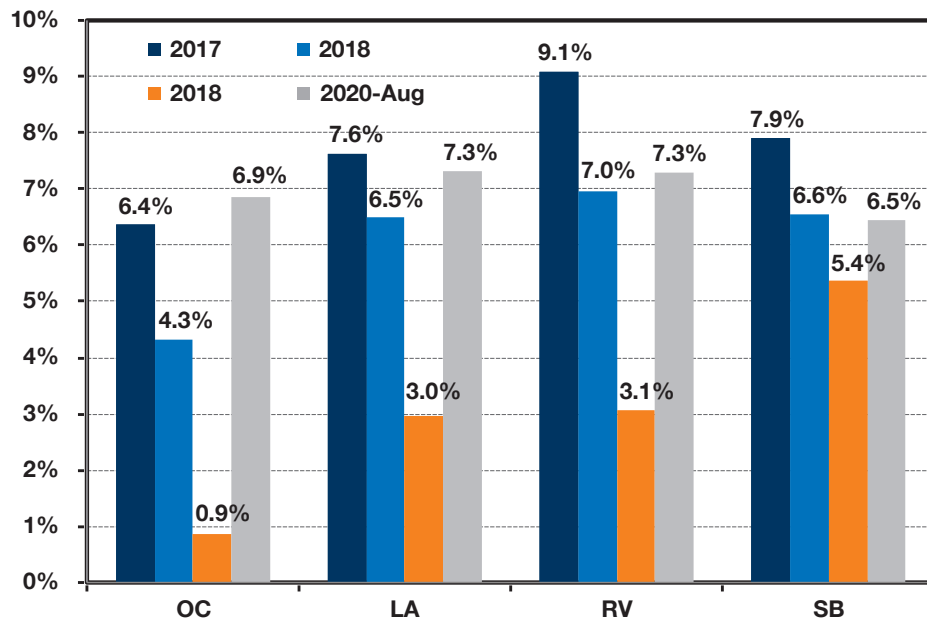
Housing Markets

The housing market has shrugged off the bloodbath elsewhere in the economy, setting record highs nationally and regionally. Home prices have continued to increase during 2020 without missing a beat, spurred by a historic supply shortage and rock-bottom mortgage rates. Median home prices in Orange County and the rest of Southern California rose at the fastest clip in 2020 in over three years (Figure 26). From January-August, Orange County median home price rose by 6.9%, Los Angeles home prices rose by 7.3%, while in Riverside and San Bernardino counties the increase was 7.3% and 6.5%, respectively.

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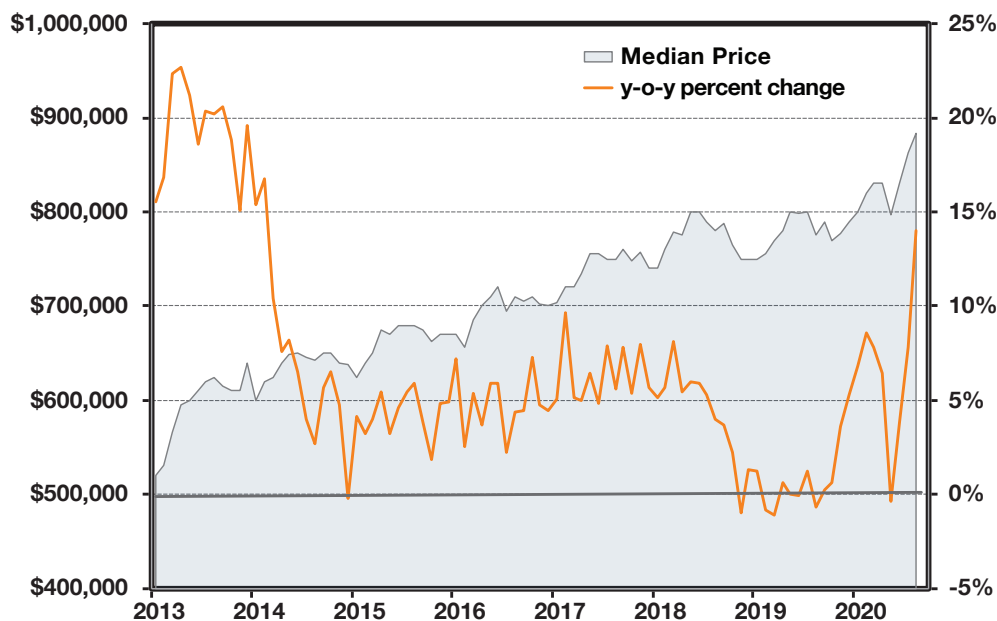
FIGURE 26
Home Prices: A Cross-County Perspective
 (y-o-y percent change; annualized growth year-to-date in 2020)



After increases of 6.4% and 4.3% in 2017 and 2018, Orange County saw a rise of less than 1% in 2019, and a similar small rise through the first part of 2020. But in the last three months, the median prices of single-family homes in the county, and indeed in all the Southern California counties, have risen at double digit rates. In Orange County, the September median price (latest available data) stands at \$880,000, a historic high (Figure 27). These recent price hikes are partly due to pent up demand from the March to May period, when the pandemic led to shutdown of most activities. But whether such increases are sustainable will depend on the future path of jobs and income.

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FIGURE 27
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 (y-o-y percent change; annualized growth year-to-date in 2020)



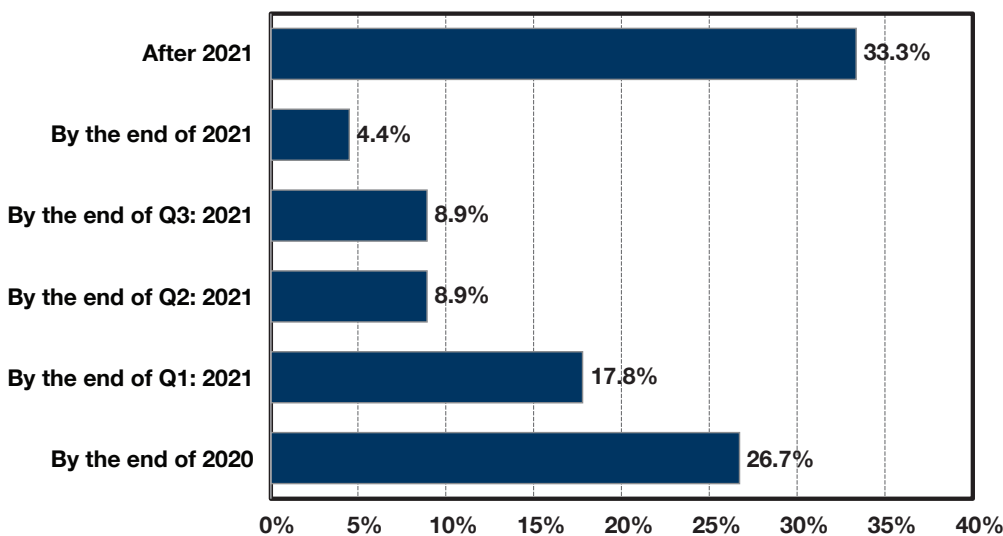
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Outlook and Forecasts

As we have argued for a while, there is a dearth of data at the regional and county level. When they are available, they are released at lower frequencies and only for a small number of economic indicators in contrast to the national economy. To compound the usual challenges of forecasting, this year's pandemic and the resulting sudden halt in economic activity has thrown most statistical estimation models in disarray. These models rely on historical patterns of data, but the pandemic is so far out of the normal range that they can no longer be the basis of reasonable forecasts for the near term.

We, at the Woods Center, have been using our quarterly survey of Orange County business executives, named OCBX, to supplement information from official data sources. The latest survey was conducted at the end of September 2020. One of the questions we asked Orange County business executives was when they expected their businesses to get back to the pre-pandemic level. As Figure 28 shows, a third of the businesses think this will happen sometime after 2021, but a little more than a quarter expect the economy to fully recovery by the end of this year, or in the next three months.

FIGURE 28
OCBX Survey: When Will Economy Return to Pre-Pandemic Levels?
(percent of respondents)



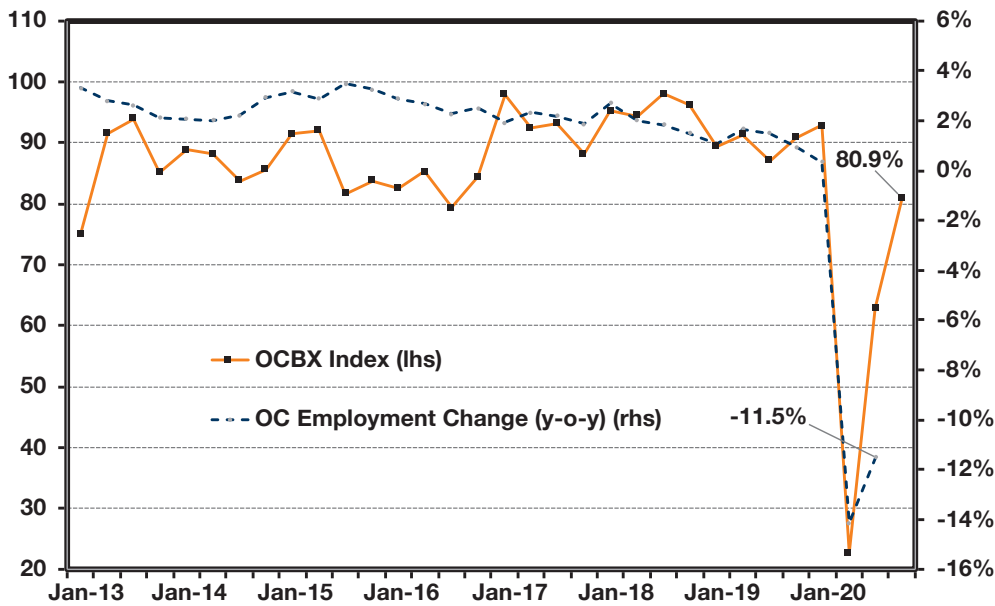
Overall, the business executives in Orange County appear to be quite optimistic about the prospects of recovery of their own businesses. The comprehensive expectations index that is created based on answers to other survey questions, OCBX, also shows a significant improvement, from 22.7 in Q2 to 62.9 for Q3 to a current 80.9 for Q4 2020 (Figure 29). This, however, is still below the levels reached during the past four years before the pandemic struck.

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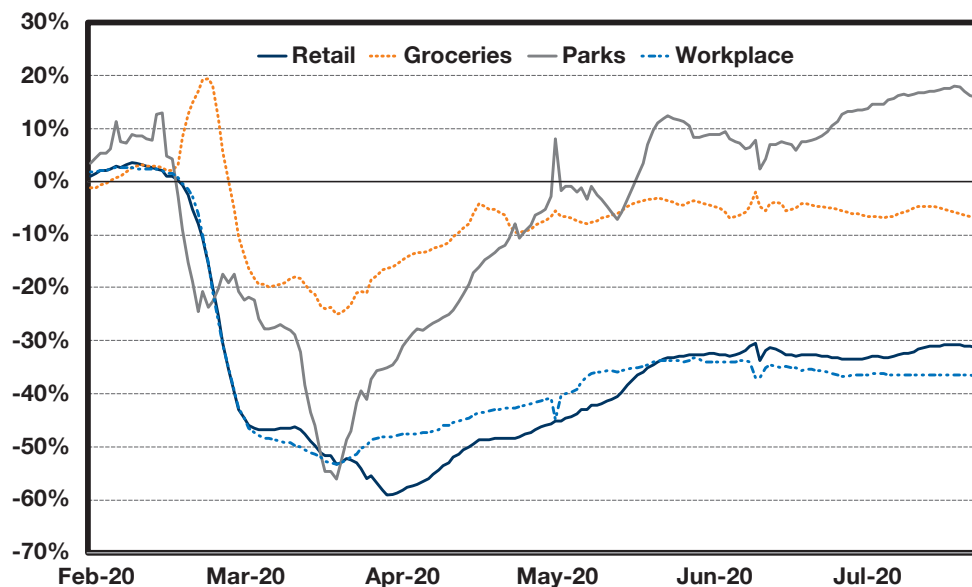
Overall, the business executives in Orange County appear to be quite optimistic about the prospects of recovery of their own businesses.

FIGURE 29
Orange County OCBX Index and Employment Change
(OCBX Index level; y-o-y percent change in employment)



Since official statistics appear with long lags, many forecasters – us included – have turned to unconventional data, which help inform the breadth and the pace of the recovery. One such database is Google Mobility, which provides timely information on individuals' movements based on their commuting patterns. Figure 30 shows the frequency of trips for four categories – retail, groceries, parks and workplaces – for Orange County. As seen, trips to parks are now above their pre-pandemic level while those to grocery stores are almost back to their February level after an initial spurt in late March (when people were presumably stocking up on toilet paper!). But trips to retail establishments and workplaces are still 30% to 40% below the early March days.

FIGURE 30
OC Mobility Data: Life has Yet to Come to Normal for a Number of Sectors
(Google Mobility data, percent change from February)



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Employment Projections

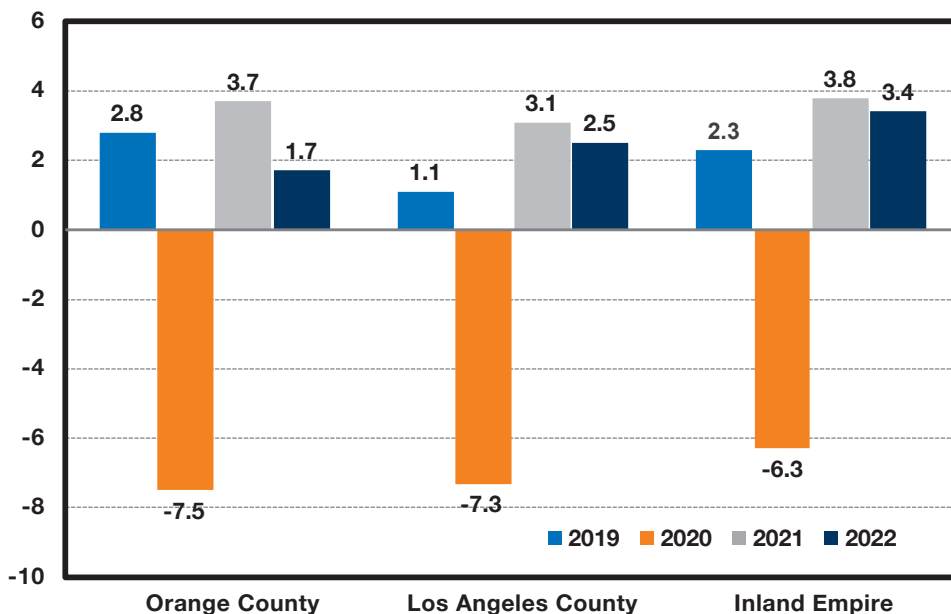
Employment losses due to the pandemic have been historic. From January to August, payroll employment in Orange County fell by 140,625 (on an annual basis) at a rate of -8.4%, in Los Angeles by 322,520 or a rate of -7.1% and the Inland Empire by 101,563 for a rate of -6.6%. The unemployment rate, which is based on a different survey, rose from 2.8% in 2019 to 14.7% in Orange County, and though it has come down, it still stood at a jaw-dropping 9.9% in August, a hair below the highest rate recorded at the height of the Great Recession. Calamitous figures were also recorded for neighboring counties. In May, the worse month on record since the pandemic began, unemployment rate rose to 20.8% in Los Angeles County and 15.1% in the Inland Empire. As of August, improvements in the labor market had reduced these figures to 16.6% for Los Angeles and 11% for Inland Empire, though this is little comfort when they continue to remain in double digits.

Our baseline outlook is for the recovery to continue in Southern California and Orange County, though the next phase is expected at a more gradual clip. We anticipate that it will take up to the end of 2022 for employment levels to approximate those at the beginning of 2020. We expect Orange County to lose payroll jobs at a rate of -7.5% in 2020 and then gain jobs at rates of 3.7% in 2021 and 1.7% in 2022 (Figure 31). For Los Angeles County, we expect a job loss of -7.3% in 2020 and then a gain of 3.1% in 2021 and 2.5% in 2022. The Inland Empire, which includes Riverside and San Bernardino counties, is expected to lose jobs at a rate of -6.3% in 2020 before gaining jobs at rates of 3.8% in 2021 and 3.4% in 2022.

In terms of housing market outlook our expectation is for median single-family home prices in Orange County to increase at average annual rates of 6% in 2020 and 3.2% in 2021. Our detailed forecasts are presented in the tables following the report.

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FIGURE 31
Payroll Employment Forecast for Southern California
(annual percent change)



Thanks is due to Bob Giuliano for assistance with this report. Any errors remain the authors' responsibility.

TABLE 1 - NATIONAL

	2015	2016	2017	2018	2019	2020f	2021f	2022f	3 year average 2020-2022
GDP									
Real GDP (Bil. \$)	17,432	17,731	18,144	18,688	19,092	18,385	19,102	19,599	19,028.9
% change RGDP	3.1	1.7	2.3	3.0	2.2	-3.7	3.9	2.6	0.9
Nominal GDP (Bil. \$)	18,238	18,745	19,543	20,612	21,433	20,833	22,062	23,077	21,990.8
% change Nominal GDP	4.1	2.8	4.3	5.5	4.0	-2.8	5.9	4.6	2.6
RGDP Components									
Personal Consumption (% change)	3.8	2.8	2.6	2.7	2.4	-3.9	4.8	2.4	1.1
Business Fixed Investments (% change)	3.8	1.8	3.8	5.2	1.9	-6.2	3.5	4.8	0.7
Residential Investments (% change)	10.2	6.6	4.0	-0.6	-1.7	3.2	9.7	6.2	6.4
Exports (% change)	0.4	0.3	3.9	3.0	-0.1	-13.2	10.1	7.8	1.6
Imports (% change)	5.2	1.7	4.7	4.1	1.1	-11.2	8.9	7.2	1.6
Net Exports (Bil. \$)	-720	-764	-817	-878	-918	-852	-948	-935	-912
Federal Deficit (Bil. \$)	-442	-585	-665	-779	-984	-3,600	-1,900	-1,220	-2,240
Labor Sector									
Unemployment Rate (%)	5.3	4.9	4.3	3.9	3.7	8.3	6.7	5.1	6.7
Payroll Employment (% change)	2.1	1.8	1.6	1.6	1.4	-5.7	2.7	2.2	-0.3
Average Weekly Hours (saar)	34.5	34.4	34.4	34.5	34.4	34.3	34.6	34.2	34.4
Labor Productivity (% change)	1.6	0.3	1.2	1.4	1.7	2.1	1.8	1.6	1.8
Prices and Wages									
CPI (% change)	0.1	1.3	2.1	2.4	1.8	1.3	1.9	2.3	1.8
Core CPI (% change)	1.8	2.2	1.8	2.1	2.2	1.8	2.2	1.9	2.0
PCE Deflator (% change)	0.2	1.0	1.8	2.1	1.5	1.3	1.7	1.8	1.6
Core PCE Deflator (% change)	1.2	1.6	1.7	2.0	1.7	1.5	1.9	1.8	1.7
Employment Cost Index (% change)	2.1	2.2	2.5	2.8	2.7	2.2	2.2	1.8	2.1
Income/Profits									
Personal Income (% change)	4.9	2.8	4.9	5.3	3.9	6.2	0.8	4.5	3.8
Real Disposable Income (% change)	4.2	2.0	3.1	3.6	2.2	6.8	-1.2	2.5	2.7
Savings Rate (% of disp. income)	7.5	6.9	7.2	7.8	7.5	16.8	9.2	8.5	11.5
After-Tax Profits (% change)	-2.9	-1.0	9.4	8.7	-0.4	-9.8	8.3	4.4	1.0
Financial Markets (year-end)									
Federal Funds Rate (Upper range) (%)	0.50	0.75	1.50	2.50	2.25	0.25	0.25	0.25	0.25
3-Month T-bill rate (%)	0.23	0.51	1.32	2.37	1.54	0.15	0.17	0.20	0.17
10-Year Treasury Note (%)	2.27	2.45	2.40	2.69	1.92	0.75	1.65	1.92	1.44
30-Year Fixed Mortgage Rate (%)	4.01	4.32	3.99	4.55	3.74	2.90	3.21	3.37	3.16
Exchange Rate, Major Trading Partners (% change)	10.8	4.4	-7.0	5.0	-0.7	-1.2	-3.8	1.5	-1.17
Other Key Measures									
Crude Oil - Brent (\$ per Barrel)	52.3	43.6	54.1	71.3	64.3	45.2	50.1	55	50.1
Industrial Production (% change)	-1.0	-2.0	2.3	3.9	0.9	-7.5	4.8	3.2	0.2
Housing Starts (Mill. Units, saar)	1.11	1.18	1.21	1.25	1.30	1.35	1.42	1.46	1.4
Existing Home Sales (Mill. Units, saar)	5.23	5.44	5.53	5.33	5.33	5.19	5.68	5.82	5.6
Light Vehicle Sales (Mill. Units, saar)	17.4	17.5	17.1	17.2	17.0	14.0	15.9	16.3	15.4

TABLE 2 - ORANGE COUNTY

	2018	2019	2020f	2021f	2022f
<i>Levels in Thousands</i>					
Population					
Total population	3,186.0	3,181.1	3,175.9	3,172.0	3,180.4
Annual percentage change	0.2%	-0.2%	-0.2%	-0.1%	0.3%
Household Employment					
Labor Force	1,617.9	1,623.4	1,576.8	1,566.3	1,566.6
Total Employment	1,569.8	1,578.3	1,447.5	1,478.2	1,529.4
Total Unemployment	48.1	45.1	126.6	95.0	72.7
Unemployment Rate	3.0%	2.8%	8.0%	6.1%	4.6%
Wage and Salary Employment					
Total Nonfarm	1,651.2	1,672.5	1,547.4	1,605.1	1,632.3
Goods Producing	267.4	266.7	253.6	250.4	260.9
Mining and Logging	0.5	0.5	0.4	0.4	0.4
Construction	106.3	106.4	104.4	104.3	109.8
Manufacturing	160.7	159.8	148.9	145.8	150.7
Durable Goods	118.5	118.7	112.5	109.5	114.7
Nondurable Goods	42.2	41.1	36.4	36.3	36.0
Service Providing	1,383.8	1,405.9	1,293.7	1,354.7	1,371.5
Trade, Transportation and Utilities	261.6	259.4	244.1	257.2	250.3
Wholesale Trade	79.8	79.4	72.6	75.0	78.4
Retail Trade	152.6	150.5	142.5	152.7	141.9
Transportation, Warehousing and Utilities	29.2	29.5	29.0	29.5	29.9
Information	26.7	26.1	23.1	22.9	23.2
Financial Activities	118.7	117.4	114.3	109.9	112.7
Professional and Business Services	317.0	328.2	307.7	319.9	345.6
Educational and Health Services	224.7	231.8	222.3	235.9	234.8
Leisure and Hospitality	222.6	228.0	180.1	186.4	189.0
Other Services	51.4	52.0	42.2	57.7	51.8
Government	161.2	162.9	159.8	164.8	164.2
<i>Percentage change</i>					
Total Nonfarm	2.0%	1.3%	-7.5%	3.7%	1.7%
Goods Producing	1.7%	-0.3%	-4.9%	-1.3%	4.2%
Mining and Logging	3.4%	-8.3%	-13.5%	-4.1%	6.0%
Construction	4.4%	0.1%	-1.9%	-0.1%	5.3%
Manufacturing	-0.1%	-0.5%	-6.9%	-2.1%	3.4%
Durable Goods	0.8%	0.2%	-5.2%	-2.7%	4.7%
Nondurable Goods	-2.3%	-2.5%	-11.6%	-0.2%	-0.6%
Service Providing	2.1%	1.6%	-8.0%	4.7%	1.2%
Trade, Transportation and Utilities	0.4%	-0.9%	-5.9%	5.4%	-2.7%
Wholesale Trade	1.0%	-0.6%	-8.5%	3.2%	4.6%
Retail Trade	-0.6%	-1.4%	-5.3%	7.2%	-7.1%
Transportation, Warehousing and Utilities	4.1%	1.2%	-1.7%	1.6%	1.4%
Information	-0.2%	-2.2%	-11.5%	-1.0%	1.3%
Financial Activities	-0.8%	-1.1%	-2.6%	-3.9%	2.5%
Professional and Business Services	4.1%	3.5%	-6.2%	4.0%	8.0%
Educational and Health Services	4.1%	3.2%	-4.1%	6.1%	-0.5%
Leisure and Hospitality	2.1%	2.4%	-21.0%	3.5%	1.4%
Other Services	2.1%	1.2%	-18.8%	36.6%	-10.2%
Government	0.7%	1.1%	-1.9%	3.1%	-0.4%
<i>Levels in millions</i>					
Personal Income					
Personal Income	220.7	229.1	245.8	236.3	246.9
Annual percentage change	5.6%	3.8%	7.3%	-3.9%	4.5%
Per capita income (\$)	\$69,268	\$72,028	\$77,391	\$74,496	\$77,622
<i>Levels in billions</i>					
Taxable Sales					
Total taxable sales	67.5	69.7	63.9	68.0	70.4
Year to year percentage change	3.6%	3.3%	-8.3%	6.4%	3.6%

TABLE 3 - SOUTHERN CALIFORNIA

	2018	2019	2020f	2021f	2022f
<i>Levels in Thousands</i>					
Population					
Total population	17,510.2	17,583.3	17,656.0	17,731.9	17,831.7
Annual percentage change	0.0%	0.4%	0.4%	0.4%	0.6%
Household Employment					
Labor Force	9,255.6	9,311.5	9,061.3	9,069.8	8,576.2
Total Employment	8,854.6	8,927.7	7,984.7	8,066.3	8,082.4
Total Unemployment	401.1	383.8	1,065.4	960.8	565.2
Unemployment Rate	4.3%	4.1%	11.8%	10.6%	6.6%
Wage and Salary Employment					
Total Nonfarm	8,037.3	8,146.1	7,576.5	7,828.6	8,023.6
Goods Producing	1,011.3	1,013.4	963.5	742.9	994.0
Mining and Logging	6.2	6.5	6.2	10.5	6.6
Construction	374.6	378.6	371.4	498.9	413.5
Manufacturing	630.5	628.3	585.8	233.5	573.9
Durable Goods	403.3	404.9	388.4	185.6	391.4
Nondurable Goods	227.2	223.4	197.4	47.9	182.5
Service Providing	7,025.9	7,132.6	6,613.0	7,085.7	7,029.6
Trade, Transportation and Utilities	1,564.1	1,571.7	1,483.4	1,883.8	1,577.5
Wholesale Trade	383.4	381.4	361.0	459.1	410.8
Retail Trade	806.2	795.5	739.3	1,138.5	725.1
Transportation, Warehousing and Utilities	374.5	394.8	383.1	286.2	441.6
Information	259.9	260.1	236.9	451.4	260.6
Financial Activities	403.4	402.6	397.0	482.5	414.6
Professional and Business Services	1,144.2	1,173.5	1,101.1	642.9	1,159.5
Educational and Health Services	1,341.5	1,383.4	1,344.7	2,045.7	1,475.6
Leisure and Hospitality	971.8	990.6	761.8	11.9	822.1
Other Services	266.3	266.9	220.9	258.2	213.9
Government	1,074.8	1,084.0	1,067.2	1,309.4	1,105.8
<i>Percentage change</i>					
Total Nonfarm	2.0%	1.4%	-7.0%	3.3%	2.5%
Goods Producing	1.6%	0.2%	-4.9%	-22.9%	33.8%
Mining and Logging	1.2%	3.5%	-3.2%	68.4%	-36.8%
Construction	5.9%	1.1%	-1.9%	34.3%	-17.1%
Manufacturing	-0.8%	-0.3%	-6.8%	-60.1%	145.8%
Durable Goods	0.3%	0.4%	-4.1%	-52.2%	110.8%
Nondurable Goods	-2.9%	-1.7%	-11.6%	-75.7%	281.2%
Service Providing	2.0%	1.5%	-7.3%	7.1%	-0.8%
Trade, Transportation and Utilities	1.3%	0.5%	-5.6%	27.0%	-16.3%
Wholesale Trade	1.4%	-0.5%	-5.4%	27.2%	-10.5%
Retail Trade	-0.3%	-1.3%	-7.1%	54.0%	-36.3%
Transportation, Warehousing and Utilities	4.9%	5.4%	-3.0%	-25.3%	54.3%
Information	0.5%	0.1%	-8.9%	90.5%	-42.3%
Financial Activities	0.0%	-0.2%	-1.4%	21.5%	-14.1%
Professional and Business Services	3.3%	2.6%	-6.2%	-41.6%	80.3%
Educational and Health Services	3.4%	3.1%	-2.8%	52.1%	-27.9%
Leisure and Hospitality	2.2%	1.9%	-23.1%	-98.4%	6835.7%
Other Services	1.7%	0.2%	-17.2%	16.9%	-17.2%
Government	1.1%	0.9%	-1.6%	22.7%	-15.5%
<i>Levels in millions</i>					
Personal Income					
Personal Income	1,097.0	1,140.5	1,225.5	1,178.0	1,232.0
Annual percentage change	5.2%	4.1%	7.6%	-4.0%	4.7%
Per capita income (\$)	\$62,647	\$64,860	\$69,413	\$66,435	\$69,090
<i>Levels in billions</i>					
Taxable Sales					
Total taxable sales	327.3	338.8	314.5	335.2	345.2
Year to year percentage change	3.6%	3.8%	-5.4%	6.5%	2.0%

TABLE 4 - LOS ANGELES COUNTY

	2018	2019	2020f	2021f	2022f
<i>Levels in Thousands</i>					
Population					
Total population	10105.5	10175.1	10244.9	10316.2	10386.8
Annual percentage change	-0.1%	0.7%	0.7%	0.7%	0.7%
Household Employment					
Labor Force	5095.5	5121.6	4942.9	4930.7	4948.7
Total Employment	4860.3	4894.3	4312.3	4432.7	4602.3
Total Unemployment	235.2	227.3	629.5	498.00	346.41
Unemployment Rate	4.6%	4.4%	12.7%	10.1%	7.0%
Wage and Salary Employment					
Total Nonfarm	4,518.1	4,566.9	4,234.4	4,367.7	4,478.7
Goods Producing	489.4	490.5	464.5	256.4	454.7
Mining and Logging	1.9	1.9	1.9	5.9	2.4
Construction	146.3	149.3	147.9	283.5	162.2
Manufacturing	341.2	339.2	314.7	-33.0	290.1
Durable Goods	199.8	201.4	194.7	-10.9	187.5
Nondurable Goods	141.3	137.8	120.0	-22.2	102.7
Service Providing	4,028.7	4,076.5	3,769.9	4,111.3	4,023.9
Trade, Transportation and Utilities	851.6	851.5	803.0	1,123.9	887.6
Wholesale Trade	223.2	220.5	209.9	310.9	241.6
Retail Trade	424.8	417.3	390.3	663.2	426.2
Transportation, Warehousing and Utilities	203.6	213.8	202.8	149.8	219.8
Information	216.4	217.3	198.9	415.8	220.6
Financial Activities	223.2	223.9	222.4	299.9	230.6
Professional and Business Services	630.4	642.8	600.4	116.1	618.7
Educational and Health Services	821.3	843.6	821.6	1,517.5	901.0
Leisure and Hospitality	536.5	544.7	401.8	-305.3	417.0
Other Services	158.8	158.4	131.9	110.3	141.2
Government	590.6	594.2	589.9	833.1	607.3
<i>Percentage change</i>					
Total Nonfarm	1.5%	1.1%	-7.3%	3.1%	2.5%
Goods Producing	-0.1%	0.2%	-5.3%	-44.8%	77.3%
Mining and Logging	-4.9%	0.4%	0.2%	205.3%	-60.2%
Construction	5.5%	2.1%	-1.0%	91.7%	-42.8%
Manufacturing	-2.2%	-0.6%	-7.2%	-110.5%	-978.4%
Durable Goods	-0.7%	0.8%	-3.3%	-105.6%	-1827.6%
Nondurable Goods	-4.3%	-2.5%	-12.9%	-118.5%	-562.9%
Service Providing	1.7%	1.2%	-7.5%	9.1%	-2.1%
Trade, Transportation and Utilities	0.7%	0.0%	-5.7%	40.0%	-21.0%
Wholesale Trade	0.8%	-1.2%	-4.8%	48.2%	-22.3%
Retail Trade	-0.3%	-1.8%	-6.5%	69.9%	-35.7%
Transportation, Warehousing and Utilities	2.8%	5.0%	-5.1%	-26.2%	46.7%
Information	0.7%	0.4%	-8.4%	109.0%	-46.9%
Financial Activities	0.7%	0.3%	-0.7%	34.8%	-23.1%
Professional and Business Services	3.0%	2.0%	-6.6%	-80.7%	432.8%
Educational and Health Services	2.6%	2.7%	-2.6%	84.7%	-40.6%
Leisure and Hospitality	2.3%	1.5%	-26.2%	-176.0%	-236.6%
Other Services	2.0%	-0.2%	-16.8%	-16.4%	28.0%
Government	0.8%	0.6%	-0.7%	41.2%	-27.1%
<i>Levels in millions</i>					
Personal Income					
Personal Income	628.8	654.4	704.4	676.4	708.0
Annual percentage change	5.2%	4.1%	7.6%	-4.0%	4.7%
Per capita income (\$)	\$62,224	\$64,310	\$68,752	\$65,567	\$68,167
<i>Levels in billions</i>					
Taxable Sales					
Total taxable sales	166.0	172.3	150.4	160.1	163.3
Year to year percentage change	3.6%	3.8%	-12.7%	6.5%	2.0%

TABLE 5 - RIVERSIDE /SAN BERNARDINO COUNTIES

	2018	2019	2020f	2021f	2022f
<i>Levels in Thousands</i>					
Population					
Total population	4622.4	4718.6	4814.9	4901.8	4988.5
Annual percentage change	1.1%	2.1%	2.0%	1.8%	1.8%
Household Employment					
Labor Force	2047.5	2071.8	2052.6	2081.9	2119.0
Total Employment	1959.4	1988.6	1857.6	1911.2	1968.6
Total Unemployment	88.1	83.2	195.0	170.7	150.4
Unemployment Rate	4.3%	4.0%	9.5%	8.2%	7.1%
Wage and Salary Employment					
Total Nonfarm	1,506.7	1,541.8	1,444.8	1,499.3	1,549.8
Goods Producing	207.5	208.3	198.1	190.0	228.6
Mining and Logging	1.2	1.2	1.1	1.7	1.1
Construction	105.2	105.9	102.2	92.8	121.9
Manufacturing	101.1	101.2	94.8	95.5	105.5
Durable Goods	65.1	64.9	61.8	69.6	69.6
Nondurable Goods	36.0	36.3	32.9	25.8	35.9
Service Providing	1,299.3	1,333.5	1,246.7	1,309.3	1,321.2
Trade, Transportation and Utilities	379.6	390.7	369.6	426.0	369.6
Wholesale Trade	65.5	66.7	64.4	58.9	71.3
Retail Trade	181.2	181.3	162.5	268.6	115.3
Transportation, Warehousing and Utilities	132.9	142.8	142.7	98.5	182.9
Information	11.4	11.5	10.2	6.6	11.3
Financial Activities	43.8	44.2	43.3	58.1	56.9
Professional and Business Services	151.4	155.5	147.0	164.6	149.7
Educational and Health Services	239.5	250.1	243.9	231.0	277.5
Leisure and Hospitality	170.6	175.2	142.3	89.6	174.3
Other Services	45.8	45.8	37.6	84.7	13.2
Government	257.2	260.5	253.0	248.6	268.7
<i>Percentage change</i>					
Total Nonfarm	3.6%	2.3%	-6.3%	3.8%	3.4%
Goods Producing	5.0%	0.4%	-4.9%	-4.1%	20.3%
Mining and Logging	20.7%	2.9%	-6.7%	54.6%	-33.6%
Construction	8.0%	0.6%	-3.4%	-9.2%	31.4%
Manufacturing	1.9%	0.1%	-6.4%	0.7%	10.5%
Durable Goods	1.5%	-0.2%	-4.8%	12.6%	0.0%
Nondurable Goods	2.5%	0.7%	-9.3%	-21.5%	39.0%
Service Providing	3.3%	2.6%	-6.5%	5.0%	0.9%
Trade, Transportation and Utilities	3.9%	2.9%	-5.4%	15.3%	-13.3%
Wholesale Trade	4.6%	1.8%	-3.4%	-8.5%	21.1%
Retail Trade	0.2%	0.1%	-10.4%	65.3%	-57.1%
Transportation, Warehousing and Utilities	8.9%	7.4%	0.0%	-31.0%	85.7%
Information	-1.4%	0.7%	-11.7%	-35.1%	71.9%
Financial Activities	-0.2%	0.8%	-2.0%	34.3%	-2.1%
Professional and Business Services	3.1%	2.7%	-5.5%	12.0%	-9.1%
Educational and Health Services	5.6%	4.4%	-2.5%	-5.3%	20.1%
Leisure and Hospitality	2.6%	2.7%	-18.8%	-37.0%	94.5%
Other Services	0.8%	0.1%	-18.0%	125.4%	-84.4%
Government	2.5%	1.3%	-2.9%	-1.7%	8.1%
<i>Levels in millions</i>					
Personal Income					
Personal Income	187.1	194.4	207.8	201.8	210.4
Annual percentage change	5.5%	3.9%	6.8%	-2.9%	4.3%
Per capita income (\$)	\$40,486	\$41,209	\$43,151	\$41,163	\$42,186
<i>Levels in billions</i>					
Taxable Sales					
Total taxable sales	79.5	82.4	63.7	68.6	74.7
Year to year percentage change	6.2%	3.7%	-12.1%	8.7%	8.9%

TABLE 6 - VENTURA COUNTY

	2018	2019	2020f	2021f	2022f
<i>Levels in Thousands</i>					
Population					
Total population	851.0	860.3	869.6	878.5	887.3
Annual percentage change	0.0%	1.1%	1.1%	1.0%	1.0%
Household Employment					
Labor Force	423.6	423.4	416.1	417.6	420.3
Total Employment	407.3	408.2	376.7	381.3	390.6
Total Unemployment	16.3	15.2	36.1	28.8	22.6
Unemployment Rate	3.8%	3.6%	8.7%	6.9%	5.4%
Wage and Salary Employment					
Total Nonfarm	309.1	311.8	298.3	304.0	309.7
Goods Producing	43.9	44.4	43.6	43.0	46.6
Mining and Logging	0.9	0.9	0.9	0.7	1.0
Construction	16.8	17.1	17.0	18.3	19.5
Manufacturing	26.2	26.4	25.8	24.0	26.1
Durable Goods	19.5	19.4	18.8	16.9	19.1
Nondurable Goods	6.7	7.1	6.9	7.1	7.0
Service Providing	265.2	267.3	254.7	261.0	263.1
Trade, Transportation and Utilities	59.0	58.0	54.9	64.6	57.8
Wholesale Trade	13.1	13.2	12.4	12.5	17.6
Retail Trade	39.6	38.5	36.3	46.3	34.1
Transportation, Warehousing and Utilities	6.3	6.3	6.1	5.8	6.1
Information	5.0	4.9	4.4	5.7	5.1
Financial Activities	16.4	15.9	15.8	13.3	13.1
Professional and Business Services	42.9	44.4	43.4	39.7	42.9
Educational and Health Services	47.7	49.0	48.3	52.5	53.5
Leisure and Hospitality	37.8	38.3	33.9	37.3	38.0
Other Services	9.5	9.7	8.4	4.7	6.9
Government	46.9	47.2	45.7	43.1	45.9
<i>Percentage change</i>					
Total Nonfarm	1.2%	0.9%	-4.3%	1.9%	1.9%
Goods Producing	4.0%	1.3%	-1.8%	-1.5%	8.4%
Mining and Logging	-4.6%	8.7%	-3.5%	-19.1%	30.6%
Construction	7.2%	1.4%	-0.6%	7.7%	6.9%
Manufacturing	2.3%	0.9%	-2.6%	-6.9%	8.8%
Durable Goods	4.6%	-0.6%	-2.7%	-10.5%	13.4%
Nondurable Goods	-3.7%	5.2%	-2.3%	3.0%	-2.1%
Service Providing	0.8%	0.8%	-4.7%	2.5%	0.8%
Trade, Transportation and Utilities	-0.8%	-1.7%	-5.4%	17.8%	-10.6%
Wholesale Trade	-0.6%	0.5%	-5.9%	0.9%	40.2%
Retail Trade	-1.4%	-2.7%	-5.7%	27.5%	-26.4%
Transportation, Warehousing and Utilities	3.0%	0.0%	-3.2%	-5.8%	6.1%
Information	0.0%	-3.3%	-9.9%	31.0%	-10.4%
Financial Activities	-2.8%	-3.4%	-0.6%	-16.0%	-1.3%
Professional and Business Services	1.8%	3.5%	-2.1%	-8.6%	7.9%
Educational and Health Services	3.9%	2.8%	-1.4%	8.8%	1.8%
Leisure and Hospitality	1.5%	1.3%	-11.6%	10.3%	1.7%
Other Services	-1.3%	2.1%	-13.4%	-43.7%	46.6%
Government	-0.1%	0.7%	-3.2%	-5.6%	6.5%
<i>Levels in millions</i>					
Personal Income					
Personal Income	52.5	54.6	58.4	56.5	59.0
Annual percentage change	5.0%	3.9%	7.0%	-3.2%	4.4%
Per capita income (\$)	\$61,712	\$63,408	\$67,104	\$64,321	\$66,457
<i>Levels in billions</i>					
Taxable Sales					
Total taxable sales	14.3	14.8	12.6	13.7	14.8
Year to year percentage change	2.3%	3.3%	-14.9%	9.1%	7.7%

TABLE 7 - IMPERIAL COUNTY

	2018	2019	2020f	2021f	2022f
<i>Levels in Thousands</i>					
Population					
Total population	181.8	185.7	189.6	193.2	196.8
Annual percentage change	0.1%	2.2%	2.1%	1.9%	1.8%
Household Employment					
Labor Force	71.3	71.3	72.9	73.3	74.0
Total Employment	57.8	58.3	54.6	57.2	60.3
Total Unemployment	13.4	13.0	20.1	21.2	21.1
Unemployment Rate	18.9%	18.2%	27.6%	28.9%	28.5%
Wage and Salary Employment					
Total Nonfarm	52.1	53.0	51.6	52.4	53.1
Goods Producing	3.2	3.6	3.6	3.1	3.2
Mining, Logging and Construction	1.8	1.9	1.9	1.8	1.8
Construction	0.0	0.0	0.0	0.0	0.0
Manufacturing	1.4	1.6	1.7	1.3	1.4
Durable Goods	0.5	0.5	0.5	0.5	0.5
Nondurable Goods	0.9	1.1	1.2	0.8	0.9
Service Providing	48.9	49.5	48.0	49.3	49.9
Trade, Transportation and Utilities	12.3	12.1	11.9	12.0	12.3
Wholesale Trade	1.8	1.8	1.8	1.7	1.9
Retail Trade	8.0	7.9	7.8	7.6	7.6
Transportation, Warehousing and Utilities	2.5	2.4	2.4	2.7	2.8
Information	0.3	0.3	0.3	0.4	0.4
Financial Activities	1.3	1.2	1.2	1.3	1.3
Professional and Business Services	2.6	2.5	2.5	2.5	2.6
Educational and Health Services	8.4	9.0	8.6	8.8	8.9
Leisure and Hospitality	4.3	4.4	3.8	3.8	3.9
Other Services	0.9	0.9	0.9	0.8	0.8
Government	18.9	19.1	18.8	19.7	19.7
<i>Percentage change</i>					
Total Nonfarm	1.0%	1.8%	-2.7%	1.6%	1.3%
Goods Producing	3.2%	11.5%	1.0%	-13.7%	4.2%
Mining, Logging and Construction	0.0%	7.9%	-1.7%	-6.8%	1.4%
Construction	NA	NA	NA	NA	NA
Manufacturing	7.7%	16.1%	4.2%	-21.5%	7.9%
Durable Goods	-4.8%	0.0%	0.8%	0.5%	1.9%
Nondurable Goods	16.1%	25.0%	5.7%	-30.7%	11.5%
Service Providing	0.8%	1.2%	-3.0%	2.8%	1.1%
Trade, Transportation and Utilities	-1.1%	-1.8%	-1.3%	1.0%	2.4%
Wholesale Trade	-0.5%	1.9%	-2.6%	-0.5%	6.3%
Retail Trade	0.0%	-1.8%	-1.2%	-2.9%	0.9%
Transportation, Warehousing and Utilities	-4.8%	-4.7%	-0.9%	15.0%	4.1%
Information	0.0%	0.0%	1.3%	20.3%	-2.6%
Financial Activities	0.0%	-7.7%	0.9%	10.9%	-2.0%
Professional and Business Services	-1.0%	-3.2%	1.1%	-0.2%	0.9%
Educational and Health Services	3.8%	6.8%	-4.3%	2.3%	1.1%
Leisure and Hospitality	-2.9%	2.5%	-14.0%	1.0%	2.9%
Other Services	-0.9%	2.8%	-7.9%	-7.9%	3.8%
Government	2.1%	1.4%	-1.6%	4.6%	0.1%
<i>Levels in millions</i>					
Personal Income					
Personal Income	6.7	7.0	7.4	7.3	7.5
Annual percentage change	1.3%	3.7%	6.2%	-2.1%	4.0%
Per capita income (\$)	\$36,974	\$37,541	\$39,055	\$37,541	\$38,346
<i>Levels in billions</i>					
Taxable Sales					
Total taxable sales	2.8	2.8	2.3	2.6	2.8
Year to year percentage change	9.0%	-1.0%	-17.1%	14.9%	7.0%

TABLE 8 - CONSTRUCTION AND REAL ESTATE ('000)

	2018	2019	2020f	2021f	2022f
Orange County					
Permits	8.2	9.8	8.7	10.4	10.9
Residential Valuation()	2,646.9	2,519.5	2,129.2	2,244.9	2,428.8
Non-residential Valuation()	3,689.5	3,105.5	2,672.1	3,046.6	3,212.7
<i>Percentage Change</i>					
Permits	-13.7%	19.7%	-11.2%	19.6%	4.6%
Residential Valuation	-17.8%	-4.8%	-15.5%	5.4%	8.2%
Non-residential Valuation	82.8%	-15.8%	-14.0%	14.0%	5.5%
Los Angeles County					
Permits	22.4	21.4	19.2	19.5	21.7
Residential Valuation()	6,896.9	6,414.3	5,564.6	6,342.1	7,402.4
Non-residential Valuation()	5,888.8	6,235.9	5,281.0	6,503.5	6,694.3
<i>Percentage Change</i>					
Permits	1.6%	-4.4%	-10.2%	1.5%	11.7%
Residential Valuation	-4.7%	-7.0%	-13.2%	14.0%	16.7%
Non-residential Valuation	2.1%	5.9%	-15.3%	23.1%	2.9%
Riverside-San Bernardino Counties					
Permits	13.6	14.4	13.4	15.3	15.3
Residential Valuation()	3,839.3	3,716.6	3,258.1	3,738.1	4,201.6
Non-residential Valuation()	2,775.9	2,560.6	2,243.1	2,454.3	2,743.9
<i>Percentage Change</i>					
Permits	-0.2%	6.4%	-7.5%	14.3%	0.4%
Residential Valuation	22.8%	-3.2%	-12.3%	14.7%	12.4%
Non-residential Valuation	6.5%	-7.8%	-12.4%	9.4%	11.8%
Ventura County					
Permits	1.2	1.3	1.1	1.1	1.2
Residential Valuation()	523.9	404.5	312.4	336.3	410.4
Non-residential Valuation()	346.2	204.5	168.2	212.6	211.4
<i>Percentage Change</i>					
Permits	-46.7%	6.5%	-19.2%	2.8%	8.9%
Residential Valuation	-24.6%	-22.8%	-22.8%	7.7%	22.0%
Non-residential Valuation	50.0%	-40.9%	-17.7%	26.4%	-0.6%
Imperial County					
Permits	0.4	0.7	0.5	0.4	0.4
Residential Valuation()	67.5	90.7	85.8	100.0	103.2
Non-residential Valuation()	151.3	62.7	64.0	94.9	100.0
<i>Percentage Change</i>					
Permits	107.3%	65.0%	-20.1%	-15.7%	-10.4%
Residential Valuation	62.8%	34.3%	-5.4%	16.5%	3.2%
Non-residential Valuation	-12.0%	-58.6%	2.1%	48.4%	5.3%
Southern California					
Permits	45.8	47.6	42.8	46.7	49.6
Residential Valuation	13,974.4	13,145.6	11,350.1	12,761.3	14,546.3
Non-residential Valuation	12,851.6	12,169.1	10,428.3	12,311.9	12,962.2
<i>Percentage Change</i>					
Permits	-3.9%	4.0%	-10.0%	9.0%	6.1%
Residential Valuation	-2.4%	-5.9%	-13.7%	12.4%	14.0%
Non-residential Valuation	19.1%	-5.3%	-14.3%	18.1%	5.3%

Sources: Number of housing permits and valuation data, in thousands, are from CCR

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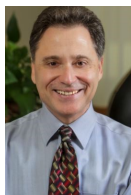
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